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AND THE

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FRANK. G. RUFFIN, EDITOR.

F. G. RUFFIN & N. AUGUST, PROP'RS.

VOL. XVII. RICHMOND, VA., SEPTEMBER, 1857. No. 9.

The Murrain, or Cattle Plague.

A correspondent of the London "Times," at Vienna, has treated this now important subject in a very able manner, classifying the symptoms of the three different murrains which he describes, and treating of them at some length, in order that those Veterinary Surgeons who have never had an opportunity of seeing cattle which were affected with either of them, may be able to distinguish one disease from the other. This is followed by another communication, in which he points out the mode of treatment adopted in Austria:

SYMPOTMS OF DISEASE.

There are three complaints which, on the Continent, are popularly called "Viehseuche," (cattle plagues.) The first is a catarrhal affection of the lungs; the second, a pulmonary complaint with typhoid symptoms; and the third, highly contagious typhus (*typhus bovinus contagious*.) In letters which have appeared in the "Times," Mr. Redcliffe speaks of the pulmonary complaint with typhoid symptoms; Mr. Gamgee, of the contagious typhus, which

is the real cattle-plague, (Rinderpest,) or murrain of the Steppe; and Dr. Greenhow, of the "lung disease," which may mean either the simple catarrhal affection of the lungs, or the pulmonary complaint with typhoid symptoms. As it is doubtful which of the three murrains is now raging in those countries from which cattle, hides, &c., have recently been exported to England, the distinctive symptoms of all three will now be described.

The principal symptoms of simple catarrhal affections of the lungs are—first, shivering, at the commencement of the malady; second, sadness and prostration of strength; third, the pulse is quicker than usual, and there is fever; fourth, the skin feels dry; fifth, the cough, which is at first dry and hollow, and comes by fits and starts. After a lapse of four or five days the cough gets "looser" and there is a discharge of phlegm; a rattling noise is heard when the animal draws its breath, and a frothy mucous escapes from its nostrils, when it allows its head to droop. It is only under unfavorable circumstances, such as immoderate excitement, a naturally bad constitution, or injudicious treatment, that the catarrhal inflammation of the lungs ends fatally, but a chronic secretion of phlegm and asthmatic cough often remain.

for a considerable time after the animal is convalescent.

The "lung disease," combined with typhus, may be divided into three periods. The symptoms of the first period, during which there is no fever, are—sadness and prostration of strength; secondly, drooping head and pendulous ears; thirdly, eyes fixed, without loss either of lustre or of color, (in vigorous animals the eyes are often red and fiery, but dry;) fourthly, the skin of the nostrils pale, and the inside of the mouth "slimy;" fifth, temperature of the body low, with horns, ears and feet cool; sixth, the skin dry and tense (stretched,) the hair lustreless, rough, and bristly, and erected along the spine; seventh, breathing difficult. The first period sometimes lasts a fortnight or three weeks; the second, or feverish period lasts three or four days. The symptoms are those above described, with feverish movements. The diseased animal has fits of shivering, considerable exacerbation in the evening, and remission of fever towards the middle of the day. After the cold, or aguish fits, are over, the reaction is much less violent than in other inflammatory complaints. Each paroxysm of fever is accompanied by an acceleration of the respiration, which is audible, and often accompanied by a moaning sound. The weakness and exhaustion of the animal are very great; the temperature of the ears, horns and legs, changes continually—now warm and now cold; the skin is dry and rough, and looks as if dust were strewn on it; the hair is erect, and the eyes, which are opened wide, are projecting, dry, shining, and fixed. The pupil is dilated. The nostrils are covered with a slimy secretion, which the suffering animal removes with its tongue; the teeth are loose; the loins are so sensitive that the pressure of the hand cannot be borne without shrinking, and the pain in the chest increases. The animal lies down but seldom, and when it does so, it is on the side on which the lung is affected. If both lungs are diseased, the animal rests on its breast-bone, with its legs under its body, and its head and neck stretched out. The alvine secretion is often either entirely suppressed, or very scanty. The urine is dark in color, and pungent in smell.—During the third period, which commonly ends in death, the uneasiness and agitation

of the animal are extreme. It continually changes its position, and draws back from the crib to the length of its tether. The eyes sink and become glazed, and the lids fall, as if the animal were about to sleep. The horns, ears, and nose are cold; the mouth is filled with offensive phlegm and saliva, and an ill-colored secretion flows from the nostrils. The animal gnashes its teeth, which are loose and shaky, the hair becomes more and more bristly, and the emaciation is rapid. At this period of the disease, the pulse is often above one hundred a minute.

The real cattle plague, or, as it is called in Austria, the "Loser Durre," has four periods. During the first period, which begins about five days after the infection has been taken, the following symptoms are observable:

1. The animal is generally languid, its movements are heavy, its gait is tottering, and it is less sensible than usual to outward impressions; in other cases, it bellows and beats the ground with its hoofs, and is unusually unruly and vicious.

2. The appetite is often much greater than usual, but after the animal has swallowed its food, it appears inattentive to what is passing around it, and hangs its head and ears.

3. When the animal rises from the earth, it does not stretch itself, as healthy animals usually do, and instead of sinking its back, it arches it.

4. The eye has more lustre than usual, and its vessels are slightly reddened.

5. Tremulous movements are perceptible in the skin, and the hair on some parts of it becomes rough.

6. After the fourth or fifth day the animal coughs at intervals, and often groans.

7. The animal licks its chops less than usual.

8. No strong pressure with the hand can be borne, and the back immediately sinks if the loins are squeezed.

9. The "droppings" are drier and less furrowed than is usual.

On the eighth day after the infection the plague is regularly declared. The symptoms are:—

1. Aguish paroxysms, and often a twitching of the whole skin.

2. Bristling of the hair.

3. Trembling of the limbs, and particularly of the hind quarters.

4. During the paroxysm the animal is generally very uneasy; it stamps, holds up its head, and shakes it continually. The vigorous cattle are very violent in their movements, have a wild eye, snort and bellow, and devour their food greedily. The weak and aged beasts, which are less wild and unruly, shake their heads and grind their teeth.

5. The roots of the horns and the hanging ears are sometimes very hot, and sometimes cool.

6. The chops and muzzle are dry, the interior of the mouth is of a light red and "steaming hot," the gums swollen and spongy, and the incisors somewhat loose. The gums have frequently spots of a deep red.

7. The sensitiveness of the loins increases.

8. The skin is extremely tense.

9. The pulsation is accelerated.

10. A single (not continuous) violent, hollow, and convulsive cough, which is totally different from any other.

11. The rumination is incomplete and interrupted.

12. The alvine excretion is scanty, dark—sometimes almost black, parched and deep furrowed. The discharge takes place very frequently.

13. The tail is either extended in a horizontal line, or used to strike the side of the animal, which continually looks round to its hind quarters.

14. The urine is of a high red color.

15. It is frequently the case that air bladders can be felt under the skin on the back and loins.

16. The fever increases in the evening, and becomes less violent in the morning.

17. The milk in cows diminishes, and in some cases is altogether dried up.

During the third period, which begins on the ninth or tenth day from the infection, all the above-mentioned symptoms increase in violence. The animal is excessively weak and sad, stands at a distance from the crib, and hangs its head almost down to the ground. If the lungs are much affected it lies down a great deal, but if not it remains on its legs. The emaciation is extreme. The eyes begin to run, and a clear white viscous fluid flows from the nose. By degrees the tears thicken

and form a crust, which half covers the eye, the discharge from the nose becomes cloudy and "glandery," the tongue is flaccid, and the breath has a peculiar and almost putrid smell. The rumination ceases entirely. The alvine secretions are now watery, and are ejected, or rather squirted out, with violence. The animal suffers greatly from tenesmus. If there is no diarrhoea, which is sometimes the case, the hind part of the body is greatly swollen. On the thirteenth or fourteenth day, when the complaint has reached the highest pitch, the fourth period begins. The animal can hardly keep on its legs; a thick ash-gray fluid runs from its glazed eyes, a corrosive secretion escapes from its nose, a thick phlegm fills its mouth, and the putrid exhalation becomes almost unbearable. The skin of the mouth and the gums is dried up, "and the tallow-like skin of the animal peels off in great flakes." The serous and even bloody alvine secretion is discharged almost without interruption; the head of the suffering animal is continually twisted round to its hind quarters. Death generally ensues on or about the seventeenth day after the infection.

TREATMENT OF THE DISEASE.

On the outbreak of "catarrhal affection of the lungs," those medicines which tend to reduce inflammation or the activity of the vital power are always employed in Austria. The ailing animals must be kept at home, in a warm, airy, clean stall, and an electuary, with small doses of salt and gentian or wormwood, be administered three or four times a day. The backs of the animals must be washed with warm water, and rubbed dry, with wisps of straw. The food must be some greenmeat, easy of digestion, or good hay; the drink some mucilaginous fluid which has been allowed to stand in a warm place.

As soon as the alvine discharge has become more plentiful, and the respiration freer, the quantity of salt must be diminished, and elecampane powder, fennel, sulphur, and a few drops of oil of turpentine, be added to the lectuary. The turpentine acts on the kidneys and increases the secretion of urine. Good hay, with oatmeal, and now and then a dose of the above-mentioned medicine, must be given for a few days after the catarrhal affection of the lungs has ceased. If there is any tenes-

cy to putrid catarrhal fever, care must be taken to prevent too great an accumulation of food in the stomach, the digestion must be aided, and the skin excited to action.

The sick animal must be fed with scalded hay, potatoes, horse chesnuts, and dosed with aromatic and balsamic medicines, combined with camphor. If the inflammation is very severe and the breathing greatly oppressed, blood may be taken in moderate quantities, and mild purgatives given. At the outbreak of malignant and catarrhal fever, and, more particularly, if there is a determination of blood to the head, bleeding in the neck is absolutely necessary. Poultices made of common salt, and vinegar, and clay, may be applied to the head and neck, and the whole body washed with vinegar and strong lye. If there is obstinate constipation, ejections of salt or soap must be given.

The internal remedies employed are, several doses of saltpetre—each consisting of half an ounce—which must be given every two or three hours. If doses, each consisting of two or three ounces of salt, with half a drachm of tartar emetic, are subsequently administered, a marked improvement will generally take place in two or three days. If, however, the malady makes further progress—and the animal loses strength rapidly—tonic remedies must be employed, and particularly, the sweet spirits of nitre (spirit. nitri. dulc.) If there is a great looseness, columbo root, with opium, and small doses of rhubarb must be given.

If any typhoid symptoms should be observed, camphor and balsamic medicines may be tried; “but if malignant catarrhal affection of the lungs is in its third stage hardly one animal out of ten can be saved.” In the first stage of the complaint the flesh of the animal is innocuous; at the beginning of the second, the sale of the meat is not prohibited, but no one is allowed to kill and sell the flesh of cattle, which have reached the third stage of the malady. The medical police of this country does not consider the disease known as “malignant catarrhal affections of the lungs,” as contagious.

The “lung disease,” combined with typhus, is not only a more fatal complaint than that above mentioned, but it is sometimes contagious. “If,” says a learned and skillful veterinary professor, “the

lung disease, combined with typhus is to be cured, it must be attacked while the animal has its full strength and vigor.”

If the patient, being of robust constitution, and of middle age, has, at the beginning of the malady, a violent and dry cough, and fiery and inflamed eyes, from five to eight pounds of blood must be taken without loss of time. If the violence of the symptoms does not abate, the venesection may be repeated, but proper attention must be paid to the constitution, and the age of the animal.

In all cases a mixture of turpentine, laurel oil, and cantharides powder must be rubbed in behind and below the shoulder-blades, and a seton, which has been anointed with the salve in question, must be passed through the shoulders—(withers is probably meant.)

M. Fey recommends that the whole of the back, beginning from the neck, should be rubbed with an ointment, composed of turpentine oil and laurel oil, of each an ounce and a half, and of strong spirits of sal-ammoniac, spirits of camphor, and powdered Spanish flies, of each half an ounce. Before the salve is applied the whole body should be well brushed or rubbed for half an hour. To clear the bowels, clysters composed of three or four ounces of common salt and camomile-tea should be given every two or three hours. Mashes, with saltpetre, sal-ammoniac, and flowers of sulphur with them, may also be given.

Some years ago a M. Merk asserted that a decoction of hemlock was a specific against the complaint, but the Vienna physicians and veterinary surgeons of the present day do not appear to be of the same opinion. If the complaint is in the second stage, camphor, valerian, asafetida, sulphur, and sulphuret of potash must be used.

Should an improvement take place less powerful medicines must gradually be substituted for those last mentioned. If, on the contrary, such unfavorable symptoms as difficult respiration, violent cough, increasing emaciation, &c., continue for some time, the best thing that the agriculturist or grazier can do is to go to no further expense, either for medicine or food. The sanitary measures taken by the medical police in this disease are the following:—The herd or farm is strictly examined, and

all those animals that cough are put on the sick list, and must be kept apart.

As the "lung disease" is believed to be contagious, not only the herd in which it prevails but also the men who tend it are kept from communication with the surrounding farms, hamlets, &c. Instead of being driven out to graze, the cattle are fed on the premises, and it has been observed that a change from green to dry food always produces a good effect on the animals which are still healthy. The sick cattle have their own attendants, who are not allowed to go near the other stalls, and a healthy animal is never allowed to drink out of a pail which has been used by one that is unwell. The carcasses of the cattle which die must be buried in a very deep pit with the straw on which they had lain. If the cattle are skinned, the skins are for a time to be put into a lime pit.

If the disease assumes a very malignant form in any place, a cordon is drawn round it, which is not raised until six weeks from the time of the last death. The stalls or stables in which cattle have been kept are always scrupulously scoured, the various implements cleaned with strong ley, and the cribs, mangers, &c., washed with a solution of chloride of lime. Some time must elapse before the convalescent animals can safely be allowed to join their fellows.

Of the treatment of the real murrain, or cattle plague, (*Rinder pest*) there is nothing more to be said than that the best and most economical method is to knock every animal on the head as soon as he is attacked by it. The *Loser Durre*, as it is here called, has invariably been brought into the country by cattle coming from Podolia, Bessarabia, or the Danubian Principalities, and we continually read that the importation of beasts from those provinces is prohibited.

As soon as it is known that the plague is raging on the other side of the frontier a cordon is drawn which is not raised until the disease has entirely ceased. If this government finds it necessary to have a number of beasts killed in order to put an end to a contagious disease, the proprietor receives £5 a head from the State; but the sum is so ridiculously small that many sick cattle are driven away and sold to the next best butcher, before the authorities are

aware that the murrian has made its appearance.

If a butcher, on killing an animal, finds it to be diseased, and does not inform the police of the fact, he is liable to be fined £4 for each offence. If he announces his discovery he only receives £5 as an indemnification for his loss. The *loser*, or third stomach, of the cattle which die of the real or steppe murrian is invariably diseased. On the outside it is generally covered with livid spots, and in the inside is found ruminated food, not in a pulpy mass as it ought to be, but in the form of a dry, dark-green, coarse powder, which is pressed in between the "leaves" of the "loser."* The fourth stomach is always either highly inflamed or gangrenous.

During the Russo-Turkish war in 1827 and 1828, Russian herds driven into Silesia brought the murrain with them, which carried off 30,000 head of cattle in Hungary, 12,000 in Gallicia, and 9,000 in Moravia. According to a very moderate estimate made by M. Faust, the steppe murrian had, at the end of the last century, carried off 28,000,000 head of cattle in Germany.

* The compound word "*loser durre*" means "dryness of the loser," or third stomach.

From the London "Field, the Country Gentleman's Newspaper."

Corns in Horses.

There are few ailments that lame more or cause more acute pain to the horse than do corns, if not properly treated, and few that are more easily alleviated if scientifically set about. Corns, I quite believe, are a disease incident to some horses, as I am quite convinced they are to some persons. Skillful chiropodists will so far alleviate their effects, that a man may walk and feel no inconvenience from them: this in no way proves that he cures them—his skill may prevent any inconvenience being felt for weeks, or months, but the disease continues, and in time, less or more, its effects will be found to continue. It is a received axiom that pressure produces corns. I do not conceive it quite amounts to this: the germ of the disease is there, and pressure produces lameness; but I am very much inclined to doubt whether pressure would produce a *bona fide* corn in a perfectly healthy foot; it would certainly

produce a bruise; but if a corn was not inherent in the foot, I feel clear that so soon as such bruise was found and cured, it would be, like a bruise of any sort, cured radically. If the same improper pressure was applied, of course the foot would be again bruised, again to be cured; and afterwards shoe the horse fairly and well, we should find no more of the temporary ailment.

Let us now consider of what leading characters the foot of the horse consists. There will be found to be wall, or crust, the side (covering) the sensible part of the foot, the frog, and the bars. Now these bars join the foot crust of the foot at the heel, and form an acute angle there, from whence they run to the narrow point or termination of the frog. It must be quite clear to any one that any sensible part of the foot confined, I may say jammed in, by an acute angle formed by the two different parts, that the foot must more or less undergo the pressure spoken of; and it is in this angle between the bars and wall of the foot that corns are inherent, or the bruises I have spoken of are found to exist. It may be asked, and very reasonably, as the horse's foot is formed the same on the inside as the out, and the shoe formed the same or nearly so at both heels, how happens it that a corn on the outside is a circumstance of very rare occurrence? The only reason I can surmise is that, from some natural cause, he treads heavier on the inside than the out; and, supposing my idea to be correct, we have not found out any mode to prevent this. Having stated the nature of corns, to the best of my experience, observation, and anatomical knowledge of the foot, I will state other causes that produce pressure besides the being confined in the corner spoken of between the bars and the crust: this is pressure from the upper surface—viz: the sole. This, as may be at once apparent, produces the same effect or result as does the accumulation of hardened substance that from time to time thickens on our corn, if we are unfortunate enough to have one. Most persons are more or less quite acquainted with the pain it creates. It is the same with the horse. It would be well for him if we could at once and as effectually relieve him as we can ourselves; but, unfortunately, common blacksmiths do not do this, or even set about it in the right

way to effectually produce the wished effect. Many persons have remarked that a horse with corns will frequently, I will say generally, go firm and sound for some days, more or less, after being shod. The fact is, the cause of lameness has been for a brief time removed, that is the corn has been relieved of pressure. Smiths are apt enough to slice away at the frog. They have learned from practice and observation that the upper coat for a certain thickness is perfectly insensible, and have ascertained by practice also how far they may, in the generality of cases, go before they approach the sensible part. I never found a smith, who thus acted, who could give a more sensible reason for his cuttings than that "it kept the frog in shape and looked neat," when the new shod foot was looked at. With deference to these gentry, I beg to say it never fell to my lot to see a frog grow out of proper shape, except in a state of disease. I have seen in a common smith's pent-house half a dozen curs waiting for the cuttings from horses' frogs, of which they are inordinately fond. They might wait long enough at Mr. Field's, of Oxford street, before they got a chance of a "bonne bouche." The closely paring a horse's healthy frog is tantamount to taking a man's comfortable walking shoes off and turning him on a newly macadamised road in a pair of dancing pumps.

They have heard that the bars are intended to "spread the hocks." They were intended for no such thing, but were placed there to support the crust and retain the foot in its natural and healthy shape; what shape it may contract from acute disease is another matter. They are not content to take away as much of the wall, the sole, and the bars, as to place them in the same relative position as regards each other as they were before, but will pare down the sole, leaving the bars standing up a perfect ridge each side of the horse's frog—I suppose from thinking they are better judges of proportion than is or was Nature, who formed the foot. If we send a horse to an inferior smith, and the servant tells him the horse has corns, he usually begins by lowering the wall or crust, whether it wants it or not; he then holds it necessary to take away a certain part of the insensible sole, whether there is any overgrowth or not. He then comes to the frog, which he works away at till its appearance pleases

him; then comes the rasp, to bring if possible the foot to a certain shape. If naturally a spread or wide one, the rasp travels along the out and inner side—the workman, with a knowing look, regarding it till he has probably weakened the crust so far as to render it a matter of serious difficulty and risk to find hold for the nails. This done he sets to work to find the corn. For this purpose a small drawing-knife, called "a scratcher," is brought into requisition; with this (I can find no better term) he *digests* away where practice has taught him the corn is to be expected—namely, the inside heel between the crust and the bar. I should mention that, prior to such anatomical search, in most cases he sets the foot on the ground, and, coming in front, probably says to the servant, with a self-satisfied air, "There! his foot looks a very different thing to what it did when you brought him." But to return to the searching. After considerable digging in the corner, and the whole superstructure of sole being removed, the corn is come at, and, as it sometimes happens, the sensible part of the foot is come at also.

The smith is satisfied with the shape to which his paring and rasping has brought the foot, and having discovered the latent corn, or, at all events, bruise, we must suppose he would have been equally satisfied with his work had he taken a mule-footed horse in hand, and, by dint of paring away the toes and front part of the foot, had brought it somewhat into the shape of a well formed one. But to the work in hand.

Having removed all direct top pressure he commences fitting on the shoe; the pain is partially removed, that is, so far as super-pressure is concerned; but there remains lateral pressure. This, at first, may not much effect the horse, and he goes sound, or comparatively so, for a time. But mark the inevitable result—he has so weakened the superstratum of insensible sole, while groping for the corn, that he has deprived the foot of any power of resisting the close approach of the wall of the foot and the bars; he has, in fact, counteracted the intent of nature, which originally was, that each part might have the power of performing its appointed function. The consequence is, from the want of the accustomed support the pressure of the shoe at the heel in a few days

will bend the weakened wall on which it rests inwards, and the shoe finally bears on the corn, and lameness returns with all its pristine grievance. It is true, there are some horses, the crust of whose foot is so strong, that, though you diminish inside support, is strong enough to support the shoe, keeping it from pressure on the ailing part. Where such is the case the horse may go in an ordinary shoe; but where the crust is thin, it will not bear the abstraction of the inward support, and a strapped or bar shoe will be necessary. We know that in a general way the undue lowering of the heels is objectionable. So are corns. It therefore merges into this, whether it is better to lower the crust and cut away the bars and heels in a corresponding degree to the quantum of sole we remove, or to leave the horse half a cripple—for I consider that in many cases we are left but to choose between the two alternatives.

The difference between a strapped shoe and a bar one, is, the latter is somewhat rounded at the heel, the former may be made all but square, in point of fact, they are pretty much the same, the great merit of both being that they pass over the frog, to which the iron part that connects the heels may in the centre be flattened: and to this flat centre may be affixed a piece of shoe-sole leather on the part on which the frog bears, thus giving the shoe a bearing on the frog that greatly lessens that on the heels, and effectually prevents a pressure on the corn, and likewise saves it from hurt or exposure to casualties. It must be quite clear to any one, that a horse with a sore corn, if he comes on a projecting, sharp, and very hard substance, must drop from sheer pain. Whether he falls or not will depend partly on his gameness and resolution, and partly on the quickness with which he brings the sound leg (if he has one) to the relief of the afflicted one. If both feet are afflicted the necessity of strapped or bar shoes becomes apparent.

There are many persons who, from prejudice object much to either; they think they have a tendency to contract the foot, and say, pertinently enough, "How can a horse's foot expand with a piece of iron run across the heels that would prevent it doing so?" This would be all very well if it was a correct representation of the case; but persons must bear in mind that, though the heels of an iron shoe cannot

expand, whether it be a common made one or a bar shoe, the horse's foot can. It may be objected, and frequently is,—how can the foot expand when confined to the shoe by nails? I quite admit the side crust cannot; but let any one look at a properly shod foot, they will find the nailing and nail holes cease long ere the heels begin. Again, let any one remove a shoe of any kind after it has been worn three weeks or a month, they will find by the polish and marks on the heels of the shoe that those of the horse have had ample space and liberty to expand, if disposed to do so. Contracted heels and feet arise from various causes, chiefly, I should say, from internal disease; but I conceive it to be rarely the case, that a really healthy foot becomes a contracted one from the effects of shoeing alone.

There is another circumstance connected with the shoeing of the horse that probably has never attracted the notice or thought of the casual observer. Let us shoe a yearling for the first time; he naturally feels awkward in his shoes, from various causes, but also from one that strikes but few of us. He has been accustomed to feel his foot, toe, sides, heels and frog, bearing equally on the ground. Now, by our mode of shoeing, and the form of the shoe, we deprive him of (say) one-fifth of the support his foot has been accustomed to feel; in fact, by the formation of the shoe we deprive him of support to the frog at all. From this he would feel probably no inconvenience if immediately led into a soft meadow, where the shoe could bury itself deep enough in the yielding surface to enable the frog to get its accustomed support. This is why hunters and race horses do not suffer from our mode of shoeing. Their principal and severest work is done on soft ground, and this neutralizes what would otherwise be the dire effects of taking all support from the frog. Set the foot on the smooth surface of a well made high road, you would perceive, as the shoe could make no impression, the vast amount of support of which we deprive the leg of the horse. The frog is an important part of the foot—an elastic cushion placed at the heel, to take off the concussion that would be otherwise thrown on the sheath of the back sinews—in fact, on the sinews themselves and all the surrounding parts of the back part of the leg. Much has

been said on the subject of "concussions and hard roads." Persons are apt to think the only concussion to be feared is that which affects the foot of the horse on hard roads; this, I admit, is bad enough, but that which arises as regards the back sinews having no support, is infinitely more to be dreaded; and I think I am right in saying, that if I had a horse engaged in a gallop match against time, on a hard road, like the one performed some years back on the Brighton road, he should most unquestionably do it with strapped shoes, well padded with leather for the frog to rest upon; and I am quite sure all horses used on hard roads would go better in such shoes than in those in general use. Fortunately for horses, usual road work is not severe enough or fast enough to render change in the mode of shoeing necessary for sound horses—and many persons are so influenced by appearances, that rather than use a somewhat unusual shoe, they will use a cripple, that might be made to go with ease to himself and safety to his employer by judicious shoeing. If a man, not conversant with such matters himself, has a horse thus situated, let him send him to a first rate veterinarian, with permission to shoe him as *his* judgment directs; he may then depend on it, all that can will be done to remedy the ailment.

HARRY HIEOVER.

How to Select Flour.

1. Look at its color; if it is white, with a slightly yellowish or straw-colored tint, buy it. If it is very white, with a blueish cast, or with black specks in it, refuse it.
2. Examine its adhesiveness; wet and knead a little of it between the fingers; if it works dry and elastic, it is good; if it works soft and sticky, it is poor. Flour made from spring wheat is likely to be sticky.
3. Throw a little lump of dry flour against a dry, smooth, perpendicular surface; if it adheres in a lump, the flour has life in it; if it falls like powder, it is bad.
4. Squeeze some of the flour in your hand; if it retains the shape given it by the pressure, that, too, is a good sign.

Flour that will stand all these tests it is safe to buy. These modes are given by old flour dealers, and we make no apology for printing them, as they pertain to a matter that concerns everybody, namely, the quality of the "staff of life."

Amount of Roots from Clover and Grasses.

That the roots of plants left in the soil serve to enrich it, there can be no doubt. It has been estimated that the roots left in an old pasture or meadow field, are equal to four times the weight of that year's hay crop. In other words, if a ton and a half of hay had been reaped, six tons of dry vegetable matter remain in the soil in the form of roots. This estimate is deduced

from a series of experiments made by Hlubek, in the agricultural garden at Laybach. The grasses he experimented on were sown in beds of equal size (180 sq. feet), and mown on the fourth year after sowing, just as they were coming into flower. The roots were then carefully taken up, washed and dried. The results of some of these trials were as follows:

KIND OF GRASS.	PRODUCE IN GRASS AND HAY.		PRODUCE IN ROOTS.		Weight of dry Roots to 100 lbs. of Hay.
	Grass. lbs.	Hay. lbs.	Fresh. lbs.	Dry. lbs.	
1. <i>Festuca elatior</i> —Tall Fescue grass,	124	36	56	22	61
2. <i>Festuca ovina</i> —Sheep's Fescue grass,	90	30	—	80	266
3. <i>Phleum pratense</i> —Timothy grass,	90	25	56	17	60
4. <i>Dactylis Glomerata</i> —Rough Cock's-foot,	202	67	—	22 $\frac{1}{2}$	33
5. <i>Lolium perenne</i> —Perennial Rye-grass,	50	17	—	50	300
6. <i>Alopecurus pratensis</i> —Meadow Fox-tail,	106	35	—	24	70
7. <i>Triticum repens</i> —Creeping Couch or Quick-grass,	120	60	—	70	116
8. <i>Poa annua</i> —Annual Meadow-grass,	—	—	—	—	111
9. <i>Bromus mollis</i> and <i>racemosus</i> —Soft and Smooth Brome grass,	—	—	—	—	105
10. <i>Anthoxanthum odoratum</i> —Sweet-scented Vernal grass,	—	—	—	—	93

A mixture of white clover, of ribwort, of hoary plantain, and of couch-grass, in an old pasture field, gave 400 lbs. of dry roots to 100 lbs. of hay; and in a clover-field, at the end of the second year, the fresh roots were equal to one-third of the whole weight of green clover obtained at three cuttings—one in the first, and two in the second year—while in the dry state there were 56 lbs. of dry roots to every 100 lbs. of clover hay which had been carried off.

The Sheep's Fescue and the Perennial Rye-grass, beside the dead roots which detach themselves from time to time, leave, at the end of the fourth year, a weight of living roots in the soil equal to three times the produce of that year in hay. If we take the mean of all the above grasses as an average of what we may fairly expect in a grass field, then the amount of living roots left in the soil when a four-years-old grass field is plowed up, will be equal to one-sixth more than the weight of that year's crop.

In the case of clover, at the end of the second year, the quantity of dry vegetable

matter left in the form of roots, is equal to upwards of one-half the weight of the whole hay which the clover has yielded. We do not know of any experiments that prove it, but we have little doubt that the annual increase of clover roots, after the second year, is far less than in the first and second years, and that there is little gained by letting land lie down with clover more than two years.

As a general rule, whatever increases the foliage of a plant, increases the roots also; and hence it is that an application of plaster to cover, even though all the clover is removed from the soil, proves beneficial to the following grain crop from the increased quantity of roots left to decay in the soil.—*Genesee Farmer.*

From the Wool Grower and Stock Register.

Fattening Hogs.

We are indebted to Mr. Moseley Dunham, of Clay, N. Y., for the following statement of an experiment made by him in fattening hogs—showing the monthly gain in weight, expense of feeding, &c.—The statement (which was furnished to the

Directors of the Onondago County Agricultural Society at its recent Fair,) is a very interesting and suggestive one to farmers. It proves the correctness of the assertion of H. T. B., in our last number, that "in this region of country we cannot afford to feed corn to hogs unless it is ground and boiled with pumpkins, apples, or some vegetables, and then only in the winter, or to harden the pork just before killing." Had Mr. D. fed his hogs the first six weeks on refuse apples, pumpkins, and the remainder of the three months on corn, the result would probably have been more profitable and satisfactory.

Experiment on the Profit of Fattening Hogs on Corn in the Ear.

Sept. 1st, 1848, shut up six hogs to fatten, and weighed them once a month until they were slaughtered.

	lbs.
No. 1, one year and 6 months old weighed	350
No. 2, " " "	322
No. 3, sow raised pigs, thin in flesh, "	234
No. 4, pig five months old,	98
No. 5, pig,	86
No. 6, pig,	44

Whole weight, 1,134

During the month fed the hogs all together 58 bushels yellow corn.

October 1st, weighed them again, and found their weight and gain as follows:

	lbs.	lbs.
No. 1 weighed 438—gain in one month	88	
No. 2 " 390— " " "	68	
No. 3 " 318— " " "	84	
No. 4 " 154— " " "	56	
No. 5 " 144— " " "	58	
No. 6 " 76— " " "	32	

Whole w'ght 1,520 Gain, 386

Fed them 68 bushels ears white corn. Nov. 1st, weighed again as follows:

	lbs.	lbs.
No. 1 weighed 504—gain in one month	66	
No. 2 " 440— " " "	50	
No. 3 " 396— " " "	78	
No. 4 " 206— " " "	52	
No. 5 " 200— " " "	56	
No. 6 " 110— " " "	34	

Whole w'ght 1,856 Gain, 336

Fed them 56 bushels ears yellow corn during the last 29 days. Nov'ber 30th, weighed and killed.

	Live weight. lbs.	Dressed. lbs.	Gain. lbs.	Shrinkage lbs.
No. 1 weighed	562	474	58	88
No. 2 "	482	404	42	78
No. 3 "	464	378	86	
No. 4 "	246	192	40	54
No. 5 "	246	190	46	56
No. 6 "	128	102	18	26

Total, 2,128 1,740 272 388

Shrunk in dressing 38 lbs. less than one-fifth.

Worth of the hogs when shut up, September 1st, was three cents per lb. \$34 02
Worth of the 182 bushels corn fed them, at 2 shillings a bushel, is 45 50
Worth of the pork after being dressed, at \$5 a hundred, is 87 00
Which leaves a balance of \$7 48 for feeding corn.

The above rates are what the store hogs, corn and pork were worth when fatted, Nov'r 30th, 1848.

Should you take the prices as they were last season, the store hogs at 6 cents per pound would come to \$68 04
The corn at 3 shillings per bushel would come to 68 25

Worth of the hogs and corn would be \$136 29
Worth of the pork at \$8 per hundred 139 20

Which would leave \$2 91 for feeding the corn; or in other words, \$2 91 more than the store hogs and corn would come to.

I certify the above to be a correct statement made by me.

MOSELEY DUNHAM.

Clay, N. Y., Sept. 1856.

Fire Proof Ladies' Dresses.

Within a very short time two young ladies have been burnt to death, owing to their light muslin dresses catching fire from a lucifer match—one in London, the other in Colchester. It ought to be generally known that all ladies' light dresses may be made fire-proof at a mere nominal cost, by steeping them, or the linen or cotton used in making them, in a diluted solution of chloride of zinc. We have seen the very finest cambric so prepared held in the flame of a candle, and charred to dust, without the least flame; and we have been informed that since Clara Webster, a dancer, was burnt to death from her clothes catching fire on the stage, the muslin dresses of all the dancers at the best theatres are made fire-proof. Our manufacturers should take the hint.—*Medical Times.*

From the New England Farmer.
Milk.

[Translated from the French.]

ORDINARY MILK—THE MILK OF SPAYED COWS.

Notwithstanding the important place milk occupies as an article of diet, nothing is more common than milk of poor quality. The conditions under which milk is produced, explain the rareness of good milk.

If we examine the milk of a certain number of cows in the country, we find united, 1st, the milk of cows that calved 10, 15, 20 or 30 days previous. (1.) 2d, the milk of cows in heat, and essentially prejudicial to health. 3d, the milk of cows with calf. (2.) 4th, and as an exception, a small quantity of good milk, that is, milk from cows that calved 5 or 6 weeks previous, and which are neither in heat nor in a state of gestation. It is therefore seen that milk is in most part of mediocre quality, or of a nature unfavorable in respect to hygiene; and yet this milk furnished by farmers, surpasses by far, the milk from cows kept in stables in the city.

The condition under which cows in city stables are kept, produces another cause, grave, serious, which greatly adds to the poor quality of milk above designated; we mean pulmonary consumption, by which a large number of cows are attacked.—Has it not been stated, in fact, by veterinary physicians, that one-half, at least, of the cows kept in stables in Paris, are phthisical.

Is it not evident that such milk is not only deprived of its nutritive qualities, but is very injurious to health? And the water, which in the retail is added to this milk, assuredly does not redeem the original vices.

In regard to the alterations in milk arising from the manner in which the cows producing it are kept, it is difficult to estimate them, otherwise than by their taste. As to milk diluted with water, consumers can easily prove this fraud. A first means consists in the employment of a small instrument, simple, and of small cost, called galactometer or milk weigher. Plunged into the milk, it indicates exactly, by its divisions, the quantity of water which has been added, whether a quarter, or a third, or a half; for it is not rare that milk is di-

luted in the latter proportion! Or a certain quantity of milk may be left to remain for six or eight hours in a cylindrical glass vase, called a guage, or in an ordinary glass. After this lapse of time, the cream which has risen to the surface, and which is distinguished by its color, reveals by its thickness, and still more by the resistance it presents on touching it, the butter quality of the milk, that is, its richness in the principles proper for the extraction of butter.

In the establishment we have founded in Paris under the name of "*Dock modèle de la vie a bon marché*," (3.) the trade in milk has extended considerably. Although the *Dock* delivers to consumers milk which is obtained from the country only, who rejects the milk which turns in the operation of boiling, it is often complained that the milk bought of the *Dock* has turned. We will take this opportunity to observe,

That the best and purest milk will turn under the influence of a change of temperature, improper care, and the employment of an impropér pan or vase, etc. (4.)

That the administration of the *Dock* might prevent the decomposition, accidental moreover, of its milk, by adding water or the bicarbonate of soda.

But this establishment, limiting itself to selling pure milk, leaves it to the consumer to add these articles.

As it is in bad spirit to indicate an evil without pointing out the remedy; and having proved the poor and often bad quality of ordinary milk, we are happy to speak of milk of an excellent quality, which is yet unknown to consumers, and of which the *Dock modèle de la vie a bon marché* has the honor of popularizing the use.

THE MILK OF SPAYED COWS.

This milk is produced from cows which, after the fifth or sixth gestation, and five or six weeks after calving, undergo an operation which consists in the ablation of the ovaries, thus rendering the cows henceforth incapable of reproduction. (5.) From this time, as happens in regard to the ox, the animal changes in nature, and its milk which we have named, milk of spayed (*lait de beuvennes*) is free from all perturbations. The spayed cows does not undergo those disturbances arising from being in heat, from gestation and parturi-

tion; she is free from those causes which produce such evil effects in the quality of milk.

In this new condition of the cow, her milk becomes regulated, and—which is important to the farmer—lactation is maintained in full quantity for a year at least, and is prolonged, diminishing in quantity but increasing in quality, two and even three years, when she is not too old and is properly kept. When lactation has ceased, the cow, which has, by a quiet and reposed life, become considerably increased in flesh, may be delivered to the butcher in perfect condition, and the meat is superior to that of ordinary cows. By generalizing the spaying of cows after the fifth or sixth gestation, there would be introduced into common use, milk of an irreproachable quality.

The milk of spayed cows give more cream than ordinary milk; it is also richer in caseum, which constitutes, a fact generally unknown, the most nourishing part of milk. Hence, the superior quality of the milk. The butter extracted directly from the milk, is delicious in taste. It testifies to the amount and richness of the caseum it contains. This milk offers precious resources for the artificial nursing of infants; it might be asserted that they will be better nourished. For the nourishment of infants, who give it the preference over other milk, (6.) we do not doubt that the milk of spayed cows will be principally used.

Such is the milk which the *Dock de la vie a bon marche* now introduces for consumption.

This milk, the production of which for a long time yet will be far from meeting the wants of those who appreciate its excellent qualities, sells for a higher price than ordinary milk. For it is necessary to pay a higher price to the farmer either to overcome by the advantage offered them, the resistance which routine always opposes to the best discoveries, or to compensate for the risk of mortality which the cow undergoes in the operation of spaying.

If, as we doubt not, the milk of spayed cows takes the place in domestic economy it should occupy, the *Dock* is assured of satisfying gradually the exigencies of the consumption, by the numerous operations

it is causing to be made from the present time.

DELAMARRE,
*Proprietor of the Dock modele
de la vie a bon marche.*

NOTES TO THE ARTICLE ON MILK.

1. It is known that cows' milk is not good for domestic use till a month or five weeks after calving; and it is well known that farmers put away their calves eight or ten days after birth.

2. This milk generally predominates, as it is common to milk into the sixth and even into the seventh month of gestation.

3. *Rue de Croissant No. 44, Paris.*

4. One precaution we would recommend; that is, to avoid placing the milk over a blazing fire, but to submit it to the action of a mild fire.

5. The spaying of cows was known in remote antiquity. In modern times the practice of this operation with the design of increasing the quality of the milk of cows dates back but about twenty-five years. It was applied with advantage in the production of milk, in 1830, by Mr. Winn, of Natchez, Mississippi, U. S. Mr. Winn and his successors proceeded by the cesarian operation, which presented serious difficulties, and was often followed by the death of the animal. At the present time, by a proceeding recently discovered, a skilful veterinary surgeon, M. Charlier, executes this operation without an external incision and renders the chances of mortality much less.

6. All persons who are in the habit of tasting milk, readily recognize the milk of spayed cows by its more unctuous and sweeter taste.

Economy of Bee-Keeping.

We never had a bee-hive in our lives; but the following article from the *OHIO CULTIVATOR* looks more like sense than anything on the subject we ever saw.

Ed. Sou. Planter.

We believe that F. G. Cary knows a thing or two about Bees, and that whatever he may think about Terra Culture, does not in the least affect his orthodoxy on this point. The first time we ever met Mr. Carey, he was carrying a curious, book-shaped bee hive in his arms, and if any body could have succeeded with the

patent, new-fangled, accommodation, double-action hives, by which bees have been humbugged, Mr. C. could have done it. We quote the following from a series of papers written by Mr. Carey for the *Cincinnatus*, which we believe is a fair statement of the case for the open country as far south as the line of Southern Ohio. For the region north and east of us, we know the question of its economy is not applicable, while we believe the hive and feeding remarks are of universal application.—*Ed. Ohio Cultivator.*

The inquiry is often made; can not bees be made profitable? We answer unequivocally in the negative, in this locality. And for the simple reason, that the time of gathering honey is so short. Under the most favorable circumstances, and during the best seasons, it does not exceed six weeks, being from the first or middle of May to the middle or last of June. When the fruit blossoms, locust, white clover and poplar are gone, the bee season is over. And if there is a failure of the fruit, and the season from July onward is dry, it will require all they store during those six weeks, to give them a fall and winter supply, and many will perish of starvation, unless fed during September; and bees, during most seasons, will not hold their own, after the first of July, in Southern Ohio. Where the buckwheat is grown in abundance, they will improve some upon it, but in this latitude, the buckwheat blossom is without much sacharine matter, on account of the heat during the season that it is in flower. In neighbourhoods where the Linden tree flourishes, (commonly termed Basswood,) the season will thereby be lengthened some two weeks, and in such localities, with this additional supply, bee keeping will be far more successful and profitable. Judge Fishback, of Batavia, is the most successful and extensive bee keeper in Southern Ohio, and it is chiefly owing to the fact of the abundance of this tree in his locality; not that he does not unite superior skill, and long experience, to render his efforts the more eminently successful, which is also the case. The great desideratum to bee keeping is bee pasture, ample and continued; give us this, and you may have your patent hives, and bee palaces.

BEE FEEDING.

Will not bee feeding supply this defect? We reply that so far as making honey for the market is concerned, never.

Honey is a vegetable secretion—and not a secretion of the bee—which appears generally abundant upon blooming flowers, and is gathered by the bee through its proboscis, is swallowed, and on the return to the hive, is disgorged from the mouth into the cells. The portion collected by each is of course small, and yet the amount daily collected by a strong swarm in the midst of the working season, is surprising. In an hour's time, it is estimated that three thousand bees will go and return, in a swarm of eighteen thousand. And a small swarm of six thousand bees, have been known to construct four thousand cells in six days, and to fill many of them during the same period. We have known three large pieces of comb, consisting of several thousand cells, constructed during a single night, after a new swarm had been hived, and the queen had in the meantime performed her work of depositing eggs in many of them.

It is surprising what results they will accomplish in a brief space, when all the circumstances favor their operations. We once had over one thousand pounds of honey stored by twenty-eight young swarms in a period of five weeks. This was no common season. Honey, then, being a vegetable product, and not a secretion of the bee, its properties depend entirely on the nature of the plants from which it is collected. One kind is of the finest flavor, delicious to the taste, pure and transparent; another is entirely of a different consistency, dark, greenish, tenacious or bitter; and a third has been known to produce deleterious effects, which were almost fatal to human life; and often even that which is apparently wholesome to some, is injurious to others. Dioscorides, Pliny, and various ancient authors, speak of honey in the East being dangerous in certain years; and Zenophon relates, that when the army of ten thousand, approached Trebisond, the soldiers having partaken copiously of honey found in the neighborhood, were afflicted like persons inebriated; several of whom became furious, and seemed as if in the agonies of death. Hence, if man furnish the supply

in the form of sugar and water, you secure the same product in return, with the water diminished it may be in quantity, which will sometimes be found crystallized in the combs, and then of course you have not syrup but sugar.

We once knew a bee-keeper who manufactured large quantities of what he was pleased to call honey, and sold it in the market for honey, made from the offal and scrapings of sugar casks, gathered from the wholesale groceries of the city, which—though after skimming and straining—must be a savory beverage to be retailed at twenty-five cents per pound as honey. Upon this subject, as upon other parts of this business, we are posted. We were met a few years since by a Yankee pedlar from Vermont, who had an extraordinary hive, with which he promised to do wonders. It was denominated Arza Gilmore's Patent, and proposed when it should be properly constructed, to confederate numerous swarms into one grand republic: something like our States, united in one government. It was so arranged as that at any time you could strengthen the weak, and at all times make the strong *stronger*. By feeding such a community you could greatly increase the product of the bees, and manufacture just such an article as you wanted. It was regarded as a great secret, and was invaluable to the man that would purchase the same. The secret ran as follows, (for it is now out, and full indemnity has been had for it.) Take one part Cuba honey, one part sugar, (white or brown, according to the quality of honey you would manufacture,) add two parts water, making four proportionals, simmer them together skim, and feed while tepid, and you will secure in return seventy-five per cent. good honey, a most delicious article, equal to the nectar of flowers, especially if you feed loaf sugar. The statement ran further, we have secured one thousand pounds of such honey, worth from twenty-five to thirty-five cents per pound, in one season. Great discovery!

Names of Bank Presidents and Cabinet officers, stood conspicuous as vouchers, and cited as authority, appended to most flattering certificates signed and sealed by the *Printer*; for we saw no trace of their originals.

The result was as might be expected, the agent pocketed the money, and the

gullible public paid the forfeit; and before all his arrangement for his community (not like, but something similar to Robert Dale Owens *among men*) were completed, some two or three hundred dollars, according to the taste and means of the purchaser, would be absorbed. This is the last and greatest swindle in the bee business we have seen. The agent informed us, that he sold in one year in this single State of Ohio, seventy-five thousand rights. We make a discount of one-half for its being something of a *Black Crow Story*; then, at five dollars a right, which was but half his price, it would amount to over one hundred and eighty thousand dollars—a profitable business still!

The last we heard of this agent, he was doing a *land office* business in the State of Michigan. He may with the tide westward have reached Iowa, or Wisconsin by this time. But further; this whole process of making honey was complete; if you wanted to make your honey fragrant, and give it a fine aroma, add to your feed a little vanilla or rose, or strawberry essence to suit the taste. This is no fancy sketch, but a simple detail of what has been palmed off, as profitable, on the subject of bee-feeding. There is a valuable lesson connected with it all, to the skilful Apiarian. There is economy in feeding your bees in July, August and September, on cheap feed, prepared as recommended by the *héros* alluded to. You thus prepare your weak swarms for winter, removing also your stored honey, you can supply its place to your strong swarms, if needed, with a less expensive article. They should be fed again a little in the Spring, while it is yet too cold for the bees to leave the hive. It greatly encourages and strengthens them. The feeding must be done with care in the Fall; least you induce a spirit of plunder among the bees.

What of patent hives? Will not some of our patent hives greatly aid in making this business profitable? It will make it profitable to the mechanic. We have tried some sixteen different patterns about with equal success, varying just in proportion to their departures from simplicity; the simplest being uniformly the best; and we now frankly say, we believe the old straw hive or hollow log is as good as any of them, with but a single exception. The glass in the rear of most of our patent

hives enables us to discover more readily the condition of a hive. Perhaps more has been said and written upon patent bee hives of late years, than on any improvement in agriculture, and certainly to as little purpose. And after all that has been done in England, France and America, the bee is more successfully cultivated, and finer honey produced in Poland, by persons who never saw a book on the subject, or heard of a patent hive, or know the difference between a queen or 'drone, or the offices they perform, than where all the experiments to the end of the chapter have been tried; the excellence of the honey, its quantity and quality, depending more on the season, and the quantity and quality of flowers which abound in the region, than in the form which the hive takes, or the artificial management bestowed.—As to the best form for hives, or the most approved kinds, what has already been said will subserve the purpose of a long story.

WHAT ABOUT THE MOTH?

In regard to the nature, instincts, and habits of this destructive little insect, and the preventing of its ravages, a book might be written, and several have been written. But it will be our aim to shorten the story.

Patent hives instead of preventing, have generally accelerated their ravages, and proved to be miller palaces, furnishing good places for the deposit and development of their eggs. Such is the case with Rich, Reynolds, Arza Gilmore and others we might name. The old rough board box hive, full of cracks and crannies, have resisted the ravages of the bee moth often longer than the most beautifully constructed patent hive standing along side.

OUR THEORY ABOUT THE BEE MOTH.

A hive of bees of ordinary strength, with the presence of a good healthy queen, will resist, of themselves, all encroachments from these depredators; while any quantity of bees, without such presence, will fall an easy prey to their ravages. When a queen such as described is present, all is activity; every bee is on duty, guarding the entrance, destroying the eggs of this insect, or performing some important office. We have placed a queen in a hive full of miller eggs and worms, and have seen it restored to health. We have seen

hives full of bees, honey and comb, become a perfect web in one week without her presence.

The destruction of what was regarded as a fine hive, has been witnessed by every Apiarian, while one less prosperous in appearance, standing beside it, has successfully resisted all encroachments.—Hence a hive of bees without a queen, or eggs in a state out of which to form one, is effectually dead. And like a dead carcass, about which the eagles or buzzards are gathered, will soon be removed by these cormorants (the moths) which nature has provided. Queenless hives are the ones first attacked by robbers, and no efforts will resist long their ingress. And when they are attacked, the besieged soon join the besiegers, and assist in removing the plunder. After which, often a general belligerent and mobocratic state will be kept up.

Patent hives often lead to this very state of things, in the following way: They are generally made of the same size and after the same pattern throughout, painted alike, set on a bench of the same height, about the same distance apart. The young queens are often in this way misled. Alighting at the wrong place, not knowing their own hive, they are at once seized and destroyed. The loss of the hive is then inevitable. Many hives are doubtless ruined in this way. As we see the old queen leads the swarm, leaving the young queen generally in the cell, yet unhatched, always unfertilized. She emerges on this errand, and, losing her way, is destroyed, and before another one can be reared, the hive is in ruins. Hence, the old swarm is generally the one most in danger—the one destroyed. To guard against this catastrophe, the hives should be placed farther apart in the apiary, or painted in front with different colors, or set with their openings alternated. Indeed, these fine hives and fine apiaries have generally proved unsuccessful; better set your hives promiscuously about the yard, than to be too tenacious about uniformity, setting them so closely together.

HOW TO PREVENT THE MILLER?

Let your effort be to discover the condition of your hive, and if you find it queenless, which you can easily discover by their movements, either restore one, or

take the honey at once. The bees themselves must be their own protectors; you can do nothing to prevent such destruction; and after the laying season is principally over, if you would prove our theory, take away your queens, and one short week will convince you of its truth.—There are miller eggs enough about any hive, at any time to destroy it in two weeks without a queen. You may assist them if you please; you will do it, whenever you see the egg, the miller, or the worm; but all will be in vain to prevent their ravages, if your hive is queenless.

WOULD YOU KEEP BEES?

If you love their society, and are willing to take part of your pay in witnessing their interesting and curious operations—if you love natural history and entomological science, by all means. If, like Bruin, you are captivated only by their sweets, or would enter upon the work to make money, it is by no means advisable. You had better give fifty cents a pound for your honey, and as to money-making, go West, and make or break, as many are doing on a more magnificent scale. And yet I would advise every man who has five acres of ground, and who, as before stated, is at all curious, to keep a few swarms of bees, an observing hive or two; and some years he will derive a rich material product in delicious sweets, and by the material and immaterial products combined, be amply rewarded for his labors.

THE SEXES--The Prolificacy of Short-horns, Color, &c.

THE SEXES.

Editor Ohio Farmer:—The statistics of breeding Shorthorns, by “Philo Agricola,” in your last number, is interesting, in showing that they are a prolific race of cattle, and that the sex cannot be pre-determined by the art or will of the breeder; and in further proof of this, allow me to give a little of my own experience in these matters.

In 1833, I had a cow, bred by my father, which had then, and afterwards, sixteen male calves, and but one female, the last of her produce.

In 183—, I used a bull upwards of a year, whose offspring, from a mixed lot of cows, were nine-tenths males. He was discarded on that account, and, I learned afterward, his former owner put him off for the same reason. Now, in the case of both these animals, was it not constitutional with them to produce the sex

they did, without any extraneous controlling influence? There could have been no other agency to cause the result in either of these (not singular) cases.

Again, the produce of two heifers, purchased by myself, at the sale of the Ohio Company's importations, in 1836, numbering about twenty-one head, were, I believe, all females but two; the last calves of each, being males. Could the art of man have changed the sex in these animals so disposed to bring forth but one sex?

SHORTHORNS THE MOST PROLIFIC.

That the Shorthorns are the most prolific race of cattle we have, I have no doubt. A few instances of fast breeding in my own stock, are given below.

In 1837 or '38, I had a Shorthorn heifer under three years old, that had three calves at one time; but they and the dam were lost from want of timely attention.

The cow *Daisy*, Vol. 3, “A. H. B.” up to nine years and five months old, had ten calves, within six years, five months and eight days; one pair of twins and one single calf, coming within ten months and eighteen days.

Calm 2., “Vol. 2,” had her fourth calf, at four years, seven months, and twenty-eight days old, all single calves.

Calm 3d., a calf of the above, had three calves, at four years and eight months old.

I do not claim it as a merit in these prolific breeders; on the contrary, their produce would be better, if fewer in number; but it shows early maturity.

PREJUDICE AGAINST WHITE COLOR.

The unfounded prejudice against the white color in Shorthorns, so deplored by your able correspondent, “Philo Agricola,” and others, is fast declining in Ohio. Five years ago, it was difficult to sell a white one, and many yet prefer any other color. But they too must soon see the absurdity of rejecting animals of the true color, of the purest blood of the race.

HARDIHOOD.

The notion of some, that the whites are not so hardy as the deeper color, is also erroneous, in my opinion. White, in a scrub, they might rightly reject, as it is foreign to their true color, and is more often found with defective constitution, and consequently, less hardy, as well in summer as in winter, than the red and white, prevailing color of the common breed.

In a lot of twenty yearling heifers, which I wintered in an open field, the last severe winter, were two, pure white, thorough bred heifers, which were, in the spring, in better condition than any of the hardiest grades of other colors, in the same lot with them.

The opposers of white Shorthorns would do well to keep in mind, that to find the true and purest blood in *any breed*, they should look for the prevailing colors.

PICKAWAY.

Ohio Farmer.

For the Planter.

Agricultural Discussion at Ridgway....

Wheat Seeding, &c.

A meeting of the Albemarle Hole and Corner Club, No. 1, was held at Ridgway (the residence of Franklin Minor, Esq.) on Saturday, July 18th. Among the invited guests were the members of Club, No. 2, Edmund Ruffin, Sr., of Hanover, Lieut. Matthew L. Maury, U. S. N., Hon. Wm. C. Preston, S. C., and B. Johnson Barbour of Orange. The Club rode over the farm, inspected and discussed its management. From the discussion I learned that the farm consists of rather less than 1000 acres—about 180 of which are very fertile low grounds, and much of the high land has been under good management for many years. The hands worked are 13 in number, and the crops very fine. 200 acres of wheat was variously estimated at from 3500 to 4000 bushels; 130 acres of corn is supposed will make from 1200 to 1500 barrels, which with 130,000 tobacco hills, constitute the principal cultivated products of the farm; but the income will be considerably increased by 200 head of killing hogs, 50 cattle and 100 sheep grazed. The general management of the farm was highly commended. The President of the Club then announced the question for discussion. “The seeding and general management of the *wheat crop*,” and called upon

Mr. Wm. W. Minor, who expressed a decided preference for drill culture over broadcasting—not that he thought there was any saving of seed by the drill, as was often asserted, but that the wheat was better covered, and grew off better, and that there was a very great saving in *guano*. He considered 100 lbs. guano used by the drill as equal to 200 broadcast. He also thought the drill saved *labor*, and that the wheat thus sowed was less liable to be winter-killed—had tried the drill on fallow, corn and tobacco land. On corn land (cultivated as his was, with the mould-board plows) he levelled the land with a three-horse cultivator and drilled *without flushing*. He seeds about 9 acres per day to the drill, and thinks it probable more could be done. Where there is much grass or corn stubble, has two boys to follow the drill. Thinks $1\frac{1}{2}$ bushels too little seed. Uses Bickford & Huffman's drill, and while there is some slight defect in the guano attachment, which interferes with its work in damp weather,—thinks it the best drill he has seen.

Mr. Franklin Minor, also prefers Bickford & Huffman's Drill, and thinks it almost a perfect implement. Used it on a portion of his land which was very poor and badly broken—an old broom-sedge fallow—so rough that the tussocks of broom straw piled up before the drill, and made a good crop. Sowed broadcast he does not think the land would have brought wheat at all. Drills his corn land

without flushing,* and makes fine crops. Uses generally about 150 pounds guano, but even where but 100 pounds were used, the crop is a good one. He thinks the drill saves 50 per cent. in guano—cannot say that there is any very great saving of labor, or that drilled wheat is less liable to be winter-killed. He uses 3 or 4 horses to the drill.

Tried an experiment in cross-drilling, applying a double quantity of both wheat and guano; 13 bushels of wheat and 300 pounds guano; but did not think the crop better than the single-drilled wheat on same land. *Mr. Wm. W. Minor* remarked that he had found an increase of crops with every increase of guano. He had applied as much as 175 pounds.

Dr. Wm. G. Carr, has never used the drill himself, but from his observation of its use by his neighbors, is highly pleased with it. His practice is not to flush corn land, but to reduce the uneven surface with harrows, or 3 horse cultivators (his corn having been cultivated with mouldboard plows). Sows guano and wheat broadcast, and puts in with cultivators. On low grounds he seeds on 40 feet beds and applies guano only in the water furrows.

Mr. R. W. N. Noland, prefers the drill-culture for the reasons: 1st: That the seed is deposited at a proper and uniform depth: Secondly, the guano is brought in immediate contact with the roots of the plant: Thirdly, it saves labor, seed and guano; and lastly, drilled wheat is less liable to be winter-killed—which fact is due partly to the deep ploughing, and, in some measure, no doubt, to the uneven surface left by the drill, receiving greater warmth from the sun's rays during the winter. He has never seen wheat winter-killed where *properly drilled with guano*, even upon red, puffy lands, which are so liable to suffer from this cause under other circumstances. In broadcasting, he prefers rolling the seed in guano, but is careful to avoid letting it remain for any length of time unseeded, lest the germinating powers of the seed be destroyed. On one occasion he had a small quantity of seed, thus rolled, left over from the day's seeding, which was sown early in the morning; this failed to come up, while the previous day's seeding came up well.

Mr. Wm. W. Gilmer, has not tried the drill himself, but from his observation of his neighbors' crops, is inclined to the opinion, that where the season is a good one, and the wheat not winter-killed, the broadcasting succeeds better than drilling. The drill, however, saves labor and guano, and he shall use it in future.

Mr. Wm. H. Southall, has had but little experience in the use of the drill, and this with very inferior implements; such as are mentioned by *Mr. Noland*. He differs with his neighbor, *Mr. Gilmer*, and thinks his observation at

* We again call attention to this important fact. Where the land does not need high bedding, flushing, i. e. re-ploughing with two or three horses is an injury to it. *ED. SOUTHERN PLANTER.*

fault. In the present crop, *Mr. G.* sowed broadcast on one side of a fence, applying 200 lbs. guano. *He, Mr. S.*, drilled his crop on the other side with only 150 pounds, and finds his crop superior to that of his neighbor. The land is about of equal fertility, and the variety of wheat the same.

Mr. B. Johnson Barbour's mind was not fully made up as to the advantages of the two modes of seeding. He states that *Mr. Jeremiah Morton* had come to the conclusion that in applying guano, it was best to use one half the quantity to be applied with the drill, and sow the other half broadcast; the first to stimulate the young plant in the early stages of its growth, and the latter application to supply its wants after the roots have spread themselves through the soil. The drills *Mr. B.* had used were inefficient. He could not speak as to the advantages of the drilling system in wheat, but was satisfied that it greatly improves the stand of timothy. Where he had used the guano drill on thin land, the stand of timothy was very fine. At first it was confined to the drill rows, but has now spread over the whole surface, and is a perfect sod. The length of the timothy heads, where thus seeded, was remarkable. He thinks drill husbandry peculiarly adapted to light, puffy lands. At this point an interesting conversation sprung up as to the effect of guano upon the *stand of clover* in which the prevailing opinion seemed to be, that guano rendered the clover crop more uncertain, and various opinions as to the cause were expressed. *Major Wm. S. Dabney*, thought the clover was killed out by the very heavy growth of wheat induced by the guano. *Mr. Noland* believed that the application of guano stimulated the germination of all the clover seed, and that when an accident befel it, the whole crop was lost, whereas without guano there was a succession of crops, two or three of which might be destroyed, and yet enough remain to seed the land.

Mr. F. Minor, thought the failure of clover due to the unfavorable seasons of late years; and that it had failed alike upon guanoed and unguanoed land.

Mr Rives being called upon by the President, stated that he had used Bickford & Huffman's drill, and was well pleased with it. It requires careful preparation of the land. He was not satisfied but on very rich land the broadcast sowing will not produce the heavier crop. His drill had two rows of tubes. Upon being asked if this possessed any advantages over the single row-drill, *Mr. Rives* appealed to *Mr. Corser* (the vendor of these drills) who said if the land broke very cloddy, the double rowed was preferable, otherwise *vice versa*.

Mr. Edmund Ruffin, Sr., did not suppose that he could say any thing on this subject that could interest or instruct the farmers here present. In his own region, and to farmers of the low country, the case might be different.

But the improvements which he deemed most important there, would here be inapplicable or impossible. For examples, the calcareous manures, so valuable and essential in the tide-water region,—the pea crop for manuring, and preparing for wheat, which he deemed next in importance to the use of calcareous manures. There was, however, one other thing that he would describe as being available in this region—the use of the pegged roller in putting in wheat, and even this was the less applicable on this hilly surface than in his level country. The implement he used was simply an oak cylinder, as large as he could get, stuck with pegs 4 inches in length and 2 inches thick, $4\frac{1}{2}$ inches apart in the row, and the rows 4 inches apart. A very great improvement upon this implement would be to have a hollow cylinder in two sections (turning upon a common axle) with a diameter as large as a cart wheel, and hooped with cart tire. The increased diameter would lessen the draught. But even the rough instrument he used did its work most effectually. The idea was an English one, that the harder wheat land is tramped the better. If the land be fresh flushed, or rain threatens, he sows the land in advance, and runs the roller half-lapping. By attaching a brush behind the roller, any grains that are left uncovered are swept into the holes made by the pegs and the operation of seeding is as perfect as can be done by any other means, save the drill, and over this it has the advantage of compressing the seed bed. If the land has been plowed long enough to form a crust, he runs the roller before seeding, and nine-tenths of the seed fall into the peg holes and are covered by the next rolling. In cloddy land this rolling is, of course, very beneficial. He sows about 5 pecks of seed per acre. He does not approve of the practice of pickling or soaking seed in salt and water, as he thinks the germinating powers impaired. To preserve his seed wheat, *Mr. R.*, as soon as the seed is threshed and in the house, adds caustic lime—3 bushels lime to 100 bushels wheat. If it be shell lime, or stone lime in small lumps, he does not have it slaked. Since adopting this practice the smut has almost disappeared. At the request of the President, *Mr. R.* gave his opinion of the value of the pea crop as a manure. Without assenting to the opinion that it was entirely unfit for this region, *Mr. R.* was inclined to think that it was not as well adapted to this country as his own. His land was flat, but not alluvial; it embraced almost every variety, from clay to the lightest sand, and had all been marled. As early as 1839 he was impressed with the value of the pea crop, and had published in the Farmers' Register a series of articles on rotation of crops and the value of green manures. He had used the pea as an improver for several years, but depending upon buying, he failed to get seed, and for a time abandoned the crop,

but not from any doubt of its value. In 1844 he again commenced its use, on a small scale at first, but increasing until 1848, when he had a whole field in peas. Since then he has continued to sow a field every year.

He tried sowing peas with corn, but failed in consequence of planting his corn too thick for the peas to grow. He is unable to give any accurate experiments, but will state that all who have tried the pea fallow in his country are pleased with it, and the amount sowed is increasing. If Mr. R. could sow his whole crop in a week he would commence June 1st; but as it is, he begins the middle of May. He has increased the quantity of seed sown from 3 pecks to 1½ bushels. He advises thin sowing for seed and thick for manure. He cuts off his corn with high stubble, and turns this in for peas in the spring. He covers the peas with a harrow, or by shallow plowing.

Mr. Noland remarked that, in the experiment he made, he turned in the peas as he fallowed the land, and had found the peas to come up well. Mr. Ruffin said he preferred to put them in shallow. In September he turns in the crop with large plows, and aims to cover the vine as perfectly as possible; but even when not turned under he considers the vine very fertilizing. He does not think its value impaired by being frosted. He thinks the effect of the pea vine, like that of lime, is rather to increase the yield of wheat than the growth of straw. He mentioned an experiment of his son, which showed an increase of 20 per cent. in grain, while there was no apparent increase of straw. The black pea is only preferable to the red in its earlier maturity where seed is an object. Mr. R. has never tried guano—marl and the pea renders it unnecessary. Plaster had no effect upon his land, because the peculiar marl he used contained gypsum.

Mr. Noland mentioned several experiments that had been made in this county with the pea crop, all of which failed to show any beneficial effect from the vine.

Mr. Wm. W. Minor had tried corn as a green lay and found fine effect from it.

Mr. Ruffin stated that it was dangerous to turn hogs upon the pea crop unless they were to be killed that fall. Stock hogs fed on peas are apt to die the following summer. Peas grown on Indian banks (banks of oyster shells) are very injurious to stock.

Here a desultory conversation sprung up, in the course of which the practice pursued by Mr. Minor of first putting his wheat in 'dozens,' and then hand-stacking, was criticised as a waste of labor and resulting in loss of wheat from shattering. Major Dabney thought there was no loss from shattering when the hand-stacking was done in the morning, while the due was upon the wheat. Mr. Gilmer thought it best to shock it at once in large shocks, and let it stand until ready to thresh. To this Mr. Ruffin objected, on account of

the danger of shocking green wheat. He had tried an experiment which proved the injury done by shocking green, and would prefer to let it dry out in the shief even if it had to lie 24 hours to do so. Mr. Noland thought wheat would keep well in dozens if properly capped.

The President called upon the Hon. Wm. C. Preston, who said he knew but little upon the subject under discussion, as in his State they raised little, or no wheat, and used but little manure except cotton seed. Cotton and rice were the great staples of his State, and they paid no attention to any thing else. He was sure that South Carolina could raise her own corn and wheat if her people would turn their attention to it. During the war of 1812, Camden flour stood second to that of Virginia; now there was none made. He expressed his gratification in finding the Virginia people so deeply interested in an improved agriculture. South Carolina had an Agricultural Society in a flourishing condition; and their fair last fall was highly creditable.

Lieut. Maury remarked that the first Agricultural Society in the Union was in S. C., the second in Pennsylvania. He spoke at length of the importance to the farmer of some system of organization by which he could inform himself, not only in regard to the production of the staple crops of his own country, but that of all other countries competing with him in the markets of the world. He thought the result might be brought about through the instrumentality of Agricultural Societies. There was now such a society in nearly every State and Territory in the Union, and also a United States Society. He thought each society should organize a statistical committee with a member in each county, who would report to the Chairman monthly the condition of the staple crops of his country. These the Chairman could digest; and publish periodically his estimate of each crop. He had just published a letter upon the subject, and was glad to hear that a movement had already been made in Virginia to this end.

Lightning Rods, Corn Crushers and Corn Planters.

NELSON, Aug. 20th, 1857.

Dear Planter:

"*Pro bono publico*," I conclude to enclose you a very courteous response of Professor Smith of the University of Virginia, to a communication of mine. It is upon the subject of lightning rods, and speaks for itself. The whole land is stuck up with rods bought of itinerant (Yankee) pedlars, which stand till they are out of sight, if that long, and will serve you worse if they do. If you think your readers would be benefited by the publication of the Professor's note, publish it—otherwise return it to me.

Whilst my pen is in hand, I will, for the

benefit of the same public, give my experience with corn planters, and corn and cob cast iron crushers. Last winter I bought a "magic corn and cob crusher," of Messrs. Baldwin, Cardwell & Co., of your city, and it, in a day or two crushed only—itself. I fixed it carefully and gave it not as much work as the manufacturers claim it can do. Messrs. Baldwin & Co. acted gentlemanly, and sent me another, which done no better. They are made of, apparently, inferior metal, and are cast too thin, at least mine were.

How other mills may do I can't say, but of these the Lord deliver me.

You recommended last spring various corn planters. I bought one of E. Whitman & Co.'s of the same gentlemen; and it is no humbug, not a bit of it—does all it professes, and well, with, to me, one unimportant exception, to wit: It does not drop corn under 30 inches, although its card says it does 18 and 24 with the smaller pinions; I used the smaller altogether, dropping about 33 inches, and left two stalks in the hill, with rows four feet apart, which is about right for my land *now*.

Our growing crops, in this county, are generally good—the tobacco grows slow somehow. We are quite seasonably.

Respectfully,

M.

UNIVERSITY OF VA., July 6th, 1857.

My Dear Sir:

I owe you a sincere apology for having postponed so long a reply to your letter, with every disposition to answer it immediately. The straining duties incident to the approaching close of the session, added to infirm health, were, in part, the occasion of a delay which, I trust, they will excuse.

Since the memorable identification of lightning and electricity, by Franklin, and the consequent introduction of lightning rods, the theory and construction of the latter have been the result of a simple application of the ascertained laws of electrical action. Without entering into detail, it may be sufficient to state, briefly, that the office of a lightning rod is two fold. First and chiefly, *to neutralize, by a silent but certain process, the electricity of the charged cloud above it*, and secondly, *in the event of a disruptive discharge or lightning-stroke, which will occur when the preceding action is incomplete, to invite the charge to itself and convey it harmless to the earth*. In view of this statement, I may say just at this point, that while a sufficient number of the small rods, such as are put up by the travelling workmen, of whom you speak, would satisfactorily perform the first function adverted to, it would be dangerous to rely upon them, in case of a disruptive discharge. The whole charge of electricity, selecting some one of the rods, would, on account of the inadequate size of the conductor, be doubtless diverted in part, to the

adjacent building, I would therefore recommend that in the event of your employing several of the small rods, (and you ought not to be contented with one), they be put in metallic connection with each other. Should you desire to use but one rod, you must attend to the following conditions:

1. The best ordinary material for the rod is copper: iron will answer.

2. If iron be used, the rod should not be less than 1 inch in diameter. Its form is immaterial. The cylindrical is preferable for strength.

3. Let the rod project from the highest point of your building as far upward as may be consistent with its stability. Do not rely upon its protecting more than a space included in a cone, whose vertex is at the summit of the rod, and the radius of whose base is from one to one and a half times the height of the rod.

4. Let the rod terminate upwardly in one, or several points. These should be protected from oxydation, and should therefore be made of, or coated with, some metal not liable to be tarnished by exposure to the air—they are frequently gilt. Platinum points are excellent; I have known zinc points to be used; they are far inferior to the foregoing, but are better than mere iron terminations.

5. Let the connections of the several portions of the rod, should it not consist of a single piece, be as perfect as possible.

6. Let the rod at the bottom be bent away from the foundation of the house, and penetrate the ground until it reaches moist earth, or a reservoir of water, so that its connection with the earth shall be unquestionable.

7. If there be a metallic roof, or gutters, or other isolated masses of metal upon the house, let them be united to the rod by metallic connections.

It might be well to paint the rod to avoid its rusting. It is not requisite to use a conducting pigment, as some extremely cautious people do. Nor is any importance to be attached to the absurd attempts frequently made to insulate the rod by interposing a ring of glass between it and the clasps which hold it to the building. Electricity, which has tension enough to dart across the space separating the earth and the cloud, would scarcely be arrested by half an inch of glass. The best security is to make the rod of *sufficient dimensions* to offer a ready passage to the largest discharge which is likely to occur.

I have here briefly mentioned such important facts and requisites as occur to me now. By complying with the conditions I have stated, it appears to me that a man may feel, to say the least, as secure in his dwelling during a thunder shower, as when he commits himself to a stage-coach for a day's journey.

Should you desire to pursue this subject further, let me recommend to you Arago's admirable essay on "Thunder." I might also refer you to Guy Lussac's report to the French

Academy on lightning-conductors, and to some letters on the same subject in the published works of Franklin.

Begging you to excuse this hastily written note, I am your obedient servant,

FRANCIS H. SMITH.

For the Planter.

Wheat Drills.

FREDERICK CO., VA., July 27th, 1857.

Editor of Planter:

DEAR SIR:—In reply to the inquiry of Dr. H. H. of Nansemond Co., respecting wheat drills, I can inform him that these are manufactured in Richmond, Va., by Charles W. Coontz, wheat drills equal in all respects to the Rockford and Huffman drill, or any other wheat drill made in America. They are built substantially on the plan of the Rockford and Huffman drill, with several improvements, and a guano attachment superior to any other in use.

They cost from \$15 to \$25 less than the R. and H. drill; are fully warranted in every particular, and can be relied on as a good article.

Virginia farmers should patronize Virginia mechanics and machinists, and not buy agricultural implements from the North when as good can be had at home. Mr. Coontz is a young, enterprising, and industrious mechanic, and is worthy of the patronage of Virginians. I am not able to state the price of his drills; but I think his largest size drill costs about \$100 with attachment complete. I presume Mr. C. can supply all orders, and will ship his drills to any point indicated, free of charge.

A VALLEY FARMER.

For the Southern Planter.

Agricultural Professorship at the University.

Much has been heard of late about a professorship of Agriculture at the University of Virginia. We are told that one Professor aided by the present professors, can make a full school of Agriculture. Perhaps it is so: but I have found out, in my farming experience, that carriage-horses don't draw well with plow-horses, and *vice versa*. If we want an Agricultural School, we had best have our own regular team of professors, and not look for help from those whose regular work is not our work.

A writer in your paper, whose good sense is equalled only by his modesty and liberality, has seen this, and proposed to avoid the difficulty by raising \$100,000, and having at the University of Virginia, a full six-horse team of our own. Now that is my idea exactly. The thing is to get the money.

The public spirited writer alluded to above (whose name should be given to the public, that we may teach our children to revere it) proposes to be one of twenty who will give \$5000 for this purpose; or one of a hundred

who will give \$1000, or one of two hundred who will give \$500. As yet, I have seen no response to this noble challenge. I have been waiting for it—and still I hope for it.

Meanwhile I will keep the ball rolling by accepting that part of the challenge which comes hindmost. I hate to be hindmost—and never am in working my crops—but in money matters I can't help it, for I am poor. But I will be one of any number who will give \$500 to this good cause. It is an honour to be in this race, even though among the hindmost. Would to God I had the wealth to lead the row.

I have been thinking that we farmers of limited means could afford to be liberal in this work if we could offer a certain sum to be paid part each year, with interest on the part unpaid. I would venture to take up the second part of the challenge on those terms. I believe, if the Society would appoint some noble and distinguished man, who has time, talents and zeal, and send him among the farmers to get money on some plan of this kind, that the farmers would give the needed sum in less than one year. What a proud title would it be to reach posterity by, "the man who raised money enough to educate the farmers" Whose shall it be?

BIG LICK.

For the Planter.

Dumpling on the Tobacco Crop.

A great doctor* once gave a receipt for dressing and using cucumbers, in about these words: "Pare them nicely, slice them thin, put on plenty of salt, pepper and vinegar, and then,—give them to the pigs."

My receipt for cultivating tobacco is like this, only more so. I say, don't cultivate it all.

Tobacco is the unfriendliest of all crops to the improvement of a farm. It is a complete monopolist of manure. The tobacco-lots get every particle from the stable and barn-yard, except the few loads that the planter's wife begs for her garden. The very wood-land is often robbed of its dead leaves, and top-soil, to fatten the tobacco ground. The whole tract is impoverished, starved, cheated of its aliments, to pamper the favorite crop. The wheat's only chance for benefit from the manure, is, when it is sown upon tobacco land.—Then, it has the pet's leavings.

The planter's attention, too, is all taken up by his tobacco. Even if he does not sit up with it of nights, (as they say an

* Doctor Fothergill.

acquaintance of mine, and his wife, used to do,) his thoughts, and the cares of his overseer and hands, are so filled with it, that other crops are neglected; particularly the many third and fourth-rate crops, such as hay, turnips, potatoes, beets, and pumpkins; and milch cows, pork, mutton, beef, milk, butter, honey, fruits, &c., that bring so much comfort and profit. It is as much as he can do to sow and harvest his wheat, and to plant, weed hastily, and gather his corn; for the months from March to January, are spent in preparing and nursing plant-beds, hoeing and hillling tobacco ground, planting and re-planting, watering, suckering, weeding, priming, topping, worming, cutting, scaffolding, housing, hanging, firing, striking down, stripping, tying and prizing; with constant anxieties and watchfulness all the time, to profit by or to guard against the weather and accidents.

Tobacco hills do away horizontal plowing entirely; and makes washing rains do their worst. The fine chopping of the ground, and its not being *rolled* (as wheat or oat ground ought to be) makes it wash the more. As to clover and plaster, or compost-heaps, and lime, I hardly know a tobacco maker who uses them at all.—Slovenly farming of all sorts, bad fences, gates swaggering on the ground and latched with fence rails, shabby, comfortless dwellings, rickety barns and stables, fields all in gullies and galls, except one or two pampered tobacco lots—commonly attend that crop.

As a tobacco plantation is worth less and less every year, the planter is, in fact, continually turning his *capital* into *income*: he is ripping the goose. He, and his wife and daughter, do not think of this, but suppose what he gets for his tobacco to be fair income; and they spend accordingly. They do not even take the average of his prices; but if he happens one year in five to get ten, or twenty dollars a hundred, they take that as the measure of his income; and the carriage, piano, gold watches, and finery, and expenses of all sorts, are squared by it. So he grows poorer and poorer, whether he gets high prices or low: only his poverty comes faster if they are generally low, but now and then high. The market for that article is so subject to caprice, and speculation—its ups and downs are so uncertain—

that I do not know any planter who always gets a good price. California and Australia, just now, are making gold and silver so cheap, that tobacco, like almost every thing else, *seems* to be very high.—But a hogshead of it buys no more flour, oats, or corn, or sugar,—commands no more labor—than it did ten years ago.—It is still as much of a lottery as ever; and every body knows how seldom any one is bettered by drawing a prize in a lottery.

Some close-fisted tobacco makers do continue to keep down their spendings, and save their money; laying it out in land or negroes, or lending it. But these do not enjoy life as they ought; and forget the great truth, that the safest investment of *money earned*, is in solidly improving land they already own. And there is no improvement so solid, as *fattening the soil*.

Tobacco, I agree, prepares the ground very well for wheat; especially new ground, just cleared; leaving plenty of aliment for it, if no washing rains have come, and if you have taken off only one crop of tobacco. Moreover—if you sow clover on the wheat, and use the clover two or three years as a fertilizer,—perhaps you will not lose by the tobacco, if you *get a good price for it*. All the men that stand up for tobacco as not an exhausting crop, refer to that mode of management; rest their plea upon five *ifs*, and a *perhaps*. But how many planters practise that mode? Not three in my county, that I know of. And among the ten or fifteen thousand tobacco growers of Virginia, probably not three hundred practise it. We may therefore set it down as not generally practicable, or advisable.

I have heard, that the farmer who, of all living men, has done the most for agriculture in Virginia, lets no tobacco grow upon his land; considering it the deadly foe to good farming; and to thrifty husbandry.

The effect of that crop upon the whole country, has been like its effects upon the fortunes of individual cultivators. No part of Virginia ever went to ruin so fast or so far, as the tobacco growing part. In our colonial times, when 60,000 hogsheads used to be made, tobacco was the great crop of the tide-water country, and of many midland counties. Everywhere it

was followed by worn-out lands, and piney old fields.

Deer grew plenty again, in the oldest settled counties. At this day, desolation has spread most through the tobacco planting regions. In Brunswick, and other South-side counties, I am told, there are many large tracts worn-out, with good houses on them, left unsold by their owners, who have moved off to the West with their negroes. I own that corn, and bad plowing—a mere scratching, right up and down hill—with merciless grazing, helped the wearing out: but tobacco, the great mother of ill-thrift, was the main cause of all.

My wife, Dorothy, (who looks over all my writing, to correct the spelling and put stops), says I must touch on the *filth* of chewing and smoking. She is dreadfully put out by the spitting on her floor and carpet, and the stink of tobacco smoke in our dining-room—which is our parlor.—People that consider themselves *gentlemen*, quite forget their gentlemanhood while smoking or chewing. A Methodist preacher lately spit a torrent of ambier upon my floor. And a Presbyterian preacher, smoking by our breakfast table, squirted spittle upon Dorothy's tea-kettle that was near the fire; and just missed the tea-pot.—Two lawyers, who had invited me to their houses lately, lighted cigars and smoked them, as we sat after supper; without a word of apology or leave asking to me; though I had a bad cough, which the smoke made worse. The country bucks, as they sit in the gallery at meeting, do not scruple to spit puddles, which run down the sloping floor, and drop on the ladies' bonnets below. My new hat once got into one of these puddles, and was half-spoiled. Smoking in court-houses, stages, and some railroad cars, is now a thing of course. Dorothy and I think, that these breaches of politeness caused by tobacco, add heavily to the objections against it; and that all good citizens ought to quit using, and quit tending it, as fast as possible.

As to preachers who chew or smoke, we never go to hear one of them if we can help it; and I don't believe either of us could possibly be converted by the preaching of one addicted to such nastiness.—But no doubt, the souls of an old fogy farmer and his wife, are trifles to such a preacher, compared with his *quid*, or cigar.

To heighten the folly of that practice,

it never is begun but by a considerable *struggle*. Every chewer or smoker finds tobacco disgusting to his taste at first; and not till after several trials, and being sickened once at least, is he reconciled to it. By degrees, habit produces fondness—as it would for assafetida, or Jamestown weed.

The prevalent use of this unwholesome plant, is the strangest custom in the history of mankind. Its absurdity is thus shewn by Doctor Rush:

“Were it possible for a being who had resided on our globe, to visit the inhabitants of another planet, where Reason governed, and to tell them that a vile weed was in general use among us, which afforded no nourishment—that it was cultivated with immense care, and was an important article of commerce—that the want of it produced real misery to its lovers—that its taste was extremely nauseous—that its use was attended by a considerable loss of time and property;—the account would be thought incredible; and the author would probably be excluded from society, for telling so unlikely a story.”

A people among whom such a folly prevails, have no right to laugh at Mormonism, Romanism, Boohdism, Paganism, or any other *ism*, no matter how ridiculous. “The force of folly can no farther go.”

JOHN DUMPLING.

For the Planter.

Smut in Wheat.

NEW GLASGOW, AMHERST Co. }

July 26, 1857. }

Mr. Editor—I noticed sometime ago a communication to the Southern Planter from Mr. Devenport, of Jefferson county, on the subject of wheat; stating, from his observations, carried on for twenty-five years, the cause of smut to be a little black bug, which pierces each grain of wheat in every smutted head just where the shuck divides over the grain.

Having had smut in my wheat the same year, I noticed this communication of Mr. Devenport's, and anticipating it again, as I was compelled to sow smutted wheat, I determined to observe for myself whether or not this was so. Accordingly when the wheat began to shoot out from the boot, I commenced making my observations; but came to very different conclu-

sions from those of Mr. D. For I found that the smut head comes out of the boot smutted, and that the bug only punctures the smut grains after it has come to full maturity, nor do they puncture every grain, or indeed every head. My opinion is, that the bug has nothing to do with the production of smut. But when wheat is smutted from other causes, this bug punctures the grain and depositories an egg in it, which in time hatches out and feeds upon the smut. In confirmation of this opinion, a gentleman in this county told me that another gentleman of this county, and of his acquaintance, had some years since a field of wheat so badly affected with the smut, as to be perfectly useless for bread; it remained in the stack for a year or more. When he got scarce of horse feed, he thought that he would thresh out the smutted wheat for his horses; but when he came to thresh it, he found it perfectly free from smut.

May not the larva of the little black bug have eaten it up?

The average crop of wheat in this country is a very small one, the winter, or rather severe spring, chinch bug and joint worm have done their work with us as they have done in other places.

Our oat and corn crops are very promising.

I remain, sir, yours,
Very respectfully,

W. M. H.

For the Planter.

How to Prevent a Horse from Biting Down Corn.

BUCKINGHAM COUNTY, Aug. 8, '57.

Mr. Editor—The question of great importance as a time-saving question naturally arises in the mind of every reflecting farmer, "What shall we do in order that we may prevent our mules and horses from nipping our corn while we are plowing it?" Some will suggest muzzles, but you must recollect that some labour must be incurred to make these muzzles. Now it is my purpose, in these few lines, to suggest to your consideration a very effective and simple remedy (so simple that anyone may try it who feels so disposed.) In travelling along through a field of corn, a few days since, on my way to a protracted meeting, in company with a friend of mine, my horse manifested continually a

great desire to nip off the corn, which was situated on either side of the road. I called the attention of my friend to the fact, and remarked that it was a very bad trait in his character. He, in reply, said, that he could be very easily broken from it. I remarked at the same time that it was something singular that my horse should wish to nip the corn so badly, while on the other hand his noticed it, (though he had every chance in his power to have bitten it) no more than if it had been so much tobacco. He answered in reply that he happened to be in the field one day, when one of his father's hands hitched up a horse, which bit off the corn very greedily; and that he remarked to the negro that he had better put a muzzle upon that horse, but the fellow said nay, sir, but just let her bite off a stalk of corn, and I will cure her evil propensity for biting it off. Well, in a few minutes the horse bit off a stalk, and the negro walked up to her very deliberately, taking with him a huge clod of dirt, which he crumbled into powder, and held it in her mouth some little time; and says my friend, although that horse has been worked ever since without any muzzle on, yet she has never from that day till the present time bitten off, or attempted to bite off a stalk of corn. I give this, as my friend (who is a highly respectable man, and also a strict member of the church) gave it to me, with the utmost confidence as to the truth of what he said, as he is a man whose veracity on all matters cannot be impugned even for a moment.

Respectfully,
TUUS AMICUS.

For the Planter.

De Burg's and Rhodes' Superphosphates.

Having used "De Burg's Superphosphate of Lime" to some extent, I will give you my experience of it, which I cannot say is the most favorable. I used this so called fertilizer on wheat last fall, at the rate of two hundred and twenty-five lbs. per acre. The superphosphate being always in fine condition for sowing, (which I consider its most valuable quality,) that quantity seemed large, as it blackened the freshly plowed land so as to be visible for some distance. It was harrowed in with the grain. The wheat came up well and

presented a fine appearance in the fall; stood the winter very well, and grew off prettily in the spring, but when harvest came, "Oh! what a falling off was there." The crop was not near so good as a crop of wheat grown on the same field three years ago, and without any manure; since that time the land has been unquestionably improving. The difference is about what might have been expected under the circumstances, if no manure had been used on the last crop, as the former was seeded on fallow land, and the latter after corn. Some portion of this crop was injured by chinch bug; that, of course, I do not include in my comparison of the two crops. I say this that it may not be supposed that the crop was cut short by the ravages of any insect. This leaves absolutely nothing for which to thank De Burg's Superphosphate. My candid opinion is, that more benefit may be derived from 200 lbs. of wood ashes and 25 lbs. of guano, and it would certainly be cheaper. The analysis speaks well. The fact is, that *one* article is sent to the chemist for analysis, and *another* to the farmer. I have also used Rhodes' Superphosphate of Lime on Irish potatoes, for which it comes recommended, and I believe it to be worth about one-fifth of its weight in Peruvian Guano. When it falls to that rate, perhaps I may try a little more of it. I think farmers had better buy Guano at the present exorbitant price than to be *sold* themselves at a very cheap one.

Very respectfully,

ANTI-HUMBUG.

Henrico, Aug. 5, 1857.

For the Planter.

Fine Yield of Wheat in Accomac.

ACCOMAC COURT-HOUSE, V.A., }

July 21, 1857. }

Mr. Editor—I have just received a note from a friend, in which he states that a neighbour of his, from 15 pecks of wheat, sown on 5 acres, has measured up 147 $\frac{1}{2}$ bushels clear wheat, and thinks, if he had gleaned, he would have got 10 to 12 bushels more. Pretty fair, you may think, for old Accomac—the quondam reputed land of sandhills—but it is not quite equal to the crop raised here some years ago—which was published in the So. Planter—over 60 bushels from 1 bushel sown on

1 1-11 acre; about 55 bushels per acre!—without guano, too!

Our wheat this year is first rate, and yields remarkably well, as I learn from some who have threshed. The army worm frightened us a good deal, but seems to have done but little damage to the wheat. We have also made a large crop of oats, though generally sown late. Corn, though backward, is good.

Respectfully yours,

T. R. JOYNES, JR.

For the Planter.

Labor Lost.

My Sons :—When last I wrote you, I forbid your making up a hill for tobacco or any thing else; and now I write to forbid your hillling up any vegetable, except such as produce the edible beneath the surface. Indeed I am almost ready to forbid this, but more anon. Does wheat, or oats, or hemp, require hillling? Does nature hill up a tree or anything else? No—well, then, why would you pursue an unnatural course? Surely if a tree does not require hillling up to make it stand and thrive, a plant of corn does not. If a plant of corn requires a hill six inches high, then how high should a hill be made around a tree? pshaw, away with the thing, calculation and all, it is labor lost. Nature places the roots of plants at a proper depth in the earth, and just about the time the rootlets have pushed their way to the centre between the rows, and at the time the plant is demanding the greatest amount of nourishment, you drag the soil away from the wanted spot and place it around the stalk; thus doing all manner of mischief, 1st by depriving the plant of its wanted food, 2nd exposing the spongiolies to the sun and air, 3rd, labor lost.

Perhaps one may say the stalk should be hillled to prevent its blowing down. Well, now, if six inches will be a help, then certainly two feet will be better. I know that six inches of earth about a stalk of corn will not prevent it from being blown down by winds, but am persuaded that two feet would. Will you try it? I will admit that hillling a potatoe in clay grounds may be right, but for this purpose better apply straw shavings or mold. So of beets, carrots, &c.; but if the ground is adapted to the growth of the vegetable

and yet is it wont to grow above ground, do let it have its way, it is right.

Putting a hill to any vegetable which produces an edible above ground is certainly wrong, Indian corn perhaps excepted. About the time that corn is in tassel, it is inclined to put out roots above ground called stools. These are intended by the author of nature, not only as additional feeders, but as props. If wet weather occur at the time above referred to, then the stools come forth and penetrate the earth; but if wet weather is wanting, then a hoe full of earth might answer in its stead; but the plough in the general does this work.

It is true, that it is frequently proper to call art to the assistance of nature, but a barbarous art is no art at all. Perhaps one may say reason should come in lieu; but beware of false reasoning; for the mind of man is imperfect, as is evident from our frequent disagreement. Perhaps one may say experience should be the guide; to which I reply yes, but remember that experience is imperfect too.

My sons, put your brains ahead of your feet and hands, otherwise you are traveling and working in the dark; and as in the dark you cannot strike a lick aright, so consequently all is labor lost.

ZA DRUMMOND.

July 1857.

From the *Valley Farmer*.

Small Horses.

MESSRS. EDITORS.—In the August No. of the *Farmer*, I find an article copied from another paper, in which it is mentioned that *small horses* are preferable to large ones; and I regret to see that you endorse the correctness of the writer by saying: "Every day's experience is teaching us that small horses are best." But for whom? For the farmers I presume is meant, because your excellent monthly is devoted to the farmers' business and farmers' interests. But I beg leave to dissent from this conclusion. "Every day's experience" has been teaching many farmers the very reverse of this. A consequence is, that *large horses* bring *large* prices and are in *large* demand, in most, if not all the older States. I am pleased to find that the demand for large horses is increasing in this section of ours. The prices are quite large enough for the buyer.

I agree with you that "quality is the thing in horses," and the reason why large horses are so frequently in bad repute with us of the West, is that our large horses, for the most part, are the rough, coarse, overgrown individuals of a small race. They are of an "unnatural growth"—they are "clumsy" and are "liable to stumble and be lean." All this is agreed to as concerns them. But there are species of horses, large in size, compact in forms, of handsome figure, good travelers, strong, durable, (both as to labor and to age), and not, as a race, liable to any one of the objections just quoted.

Who has not heard of the famous "Conestoga horse," of Pennsylvania? Who ever saw six of these fine fellows harnessed to the huge wagons that furnished means of transportation from the seaboard westward, before railroads came in fashion—and did not feel something like a glow of pleasure and admiration? What practical farmer ever saw the huge furrows traced by a span of such, and did not have an "abiding faith" that "seed time" would be followed by an "abundant harvest?" Who ever owned a pair and having "swapped" for a pair of *small* horses, that did not rue his bargain the first time (and ever after) he tried to haul a heavy load? Not many, I opine.

I maintain that *small horses*, on good farms, are little short of a nuisance! Let me not be misunderstood. In speaking of *small horses*, I mean all horses under fifteen hands in height. Medium sized, with me, are from fifteen to sixteen hands—large horses, sixteen and upwards.

It requires a sufficiently heavy draught, for two large horses to cut a sward twelve inches wide and eight inches deep in the furrow. Horses of medium size can accomplish the task only by severe, if not extraordinary labor. Small horses cannot do it at all.

Now, no good farmer plows less than eight inches in depth. Many go even deeper—ten and twelve inches, when the soil will permit. To attain this with *small horses*, a plow team must consist of three, or even four such. What then is gained? In the aggregate, there is more capital invested, more feed required, more lameness, more accidents, more labor in management, more expense of harness.

But suppose your plow team, as ordina-

rily, to consist of two, what follows? You plow shallow from necessity—say three, four, or five inches at most. What then? A heavy rain cuts your fields into gutters, or drowns out your crop! A drought parches it up! You are sure only of one thing—a small crop, let the season be what it may.

With large horses you can plow deep, if you will. A furrow eight or ten inches deep absorbs the whole of an ordinary shower, or succession of showers. Your fields are not disfigured with deep gullies. The moisture is garnered up, to be distributed when the drought sets in. Your crops are not parched. Your heavy ears of corn; while your neighbor, whose "experience teaches that small horses are best," complains of the lightness of his. Does not "every day's experience" prove the truthfulness of this?

Figures, it is said, won't lie. Let them, then, decide which class of horses will pay best in the draught. A pair of large horses will haul daily, to our river landing, *forty bushels* of wheat; medium sized, *thirty-two*; small ones, *twenty-five*. These are fairly estimated loads. We pay *seven cents* per bushel for hauling. A team may work, say 200 days in a year. What is the result of our figuring? In a year we would haul:

With large horses	8000	bus. at 7c.	\$560
" medium "	6400	" "	448
" small "	5000	" "	350

Making a difference of \$210 between the value of the labor of a pair of *large* and a pair of *small* horses, in one year.

In the ordinary labors of a farm the difference is still greater; because, in addition to the less amount of labor performed, there is an equal if not greater loss, growing out of the manner in which it is performed—in deficient crops, &c.

In addition to this, there is another, and evident objection to small horses. A large number of them are vicious in temper, tricky in habit and "false" in harness. Every one has observed this—many at the expense of toil and temper, neither agreeable nor profitable. On the contrary, large horses, of a large species, are mostly docile, easy to break to service, and seldom or never baulky, unless the fault is in the driver.

I do not believe there is any material difference in the duration of the different

classes of horses, or in their liability to accident or disease. Only a few day's since, the writer saw a fine looking gelding, standing *seventeen hands* in height, having been in the possession of his present owner for *twenty-three* years. The same gentleman has another of the same stock, one year his junior. These two make an excellent plow team at the present day. And there are several others in the vicinity, of about the same ages. Unfortunately, I think, the prejudices existing against large horses, twenty years ago in this country, drove their sires out of service, or we might have had many more such.

Our county fairs, however, are destined to work a revolution in this matter. All other things being equal, I have noticed that our judges of stock almost invariably award the premiums to the stock excelling in size. I doubt not that this too, will soon become the judgment of all experienced, practical farmers.

Paynesville, Mo.

J. M.

We are glad to publish the above article on *Horses*. In principle we believe it in the main correct. If the *quality* is in a horse, the larger the better. If a coin is gold, the larger the better. But the thing is to find gold in large quantities. What we asserted was, that what is true of men is generally true of horses and all other animals—that the largest specimens of a species generally lack compactness, firmness of texture, harmony of make, and consequently strength and power of endurance. For heavy hauling, of course weight is necessary. For all the purposes for which horses are used, the compact, firm-made, moderate sized, will be found most useful; but most useful only because of their *quality*—not because of their smaller size. But we must remember the old adage, "valuable goods are put up in small parcels." Gold is seldom found in mountain boldres. *

Feeding Mowing Lands.

This is a subject of much practical importance. To feed or not to feed is the question. How shall we settle it? Some persons regard it as already settled that a blade of grass should not be cropped by any animal from a field which has been mowed the same season, and is to be mow-

ed the next. This is a point in their agricultural creed, as unchangeable as any one of the laws of the Medes and Persians. But the spirit of free inquiry, now generally participated in, emboldens men to ask a *reason* for statements to which they are required to yield belief. On what, then, rests the dogma that mowing grounds should never be fed? It will be said, probably, that the productive power of the land for grass is lessened by feeding. Suppose we concede this. What does it prove? The bare fact has no relation to the farmer's practice. The real question is, whether the after-feed is worth more to be consumed by stock, or to be left to rot on the ground. It is plain that no universal rule can be laid down in such a case; it must be decided according to the necessities or advantages of the farmer—he must determine whether the value of the meat or milk the grass will produce will over-balance the loss to the ground by feeding it off.

But to proceed a little further on the assumed basis that the feeding of the ground is injurious—What is the farmer to do with his animals? They must live somewhere, and if they are injurious to the land, what is gained by keeping them in pastures? Do they not injure the ground there as much as they would in mowing fields? With the same kind of ground and the same kinds of herbage, there is no reason why they should not. If there is a scarcity of feed in the pastures, and the animals are confined to them, they may be forced to graze more closely than is favorable to the vigor of the plants; if, on the other hand, the range could be enlarged, the necessity for close-feeding, anywhere, would be obviated.

We have thus far recognised, formally; the proposition that the grazing of mowing grounds is always injurious to the future crops. Has this been proved? We do not think it has. We admit that stock may injure some grounds—those, for instance, which are so wet and soft that they are poached by the hoof. But we have no right to infer from this that grazing is injurious to all grounds. We admit that land may be grazed too closely, but it does not follow that grazing to a certain extent would be injurious. Can any one point to an experiment, where mowing

land in a proper state of dryness has been fairly divided, a part left for years without being fed in autumn, and the other part fed to a moderate degree? We are not apprised of any experiment of this kind; but a correspondent of the *Maine Farmer* gives the result of his experience, as bearing on this subject which, although not to be taken as demonstrative evidence, agrees with the experience and observation of many others. He says:

"Twenty years ago, I purchased an old, and somewhat worn-out field, near my farm. I had supposed, and the theory was generally believed in the neighborhood, that mowing land would not only hold its own, but would gradually improve, by merely being kept from feeding. In accordance with this view, I suffered not a hoof to touch the soil. The result proved I was sadly mistaken. On entering the next hay season, what was my surprise to find the old fog still visible, with the spires of grass hardly near enough to be called neighbors, which rendered it nearly impossible to mow what grass there was. Still I was not satisfied, but held on to my opinion another year, and still another, with yet more unprofitable results. I then thought it time to adopt some other method, and my subsequent experience goes to prove, to my satisfaction, that feeding, to a certain extent, even to short feeding, when the ground is in a proper state, that is, when not too soft, is not only not hurtful, but is really beneficial."—*Boston Cultivator*.

The Potato Fly.

A writer in the College Journal of Medical Science, published in Cincinnati, calls the attention of his brethren to the medical uses of the potato fly, several species of which are found in the United States, and which are said to be equal if not superior to the Spanish fly, for raising blisters. It is stated that although the *Cantharis vittata* or potato fly has been adopted by the United States Pharmacopoeia as official, and has been used to some extent for many years, it has not attracted the attention either in a therapeutic or commercial point of view which its value deserves. Large sums are annually sent abroad for the Spanish fly, which might better find pockets among our own peo-

ple, who thereby would not only turn an honest penny, but at the same time rid their farms of a destructive pest. The extent of the market for this medical agent, may be inferred from the fact that nearly ten tons of cantharis are imported annually into England.

The *cantharis vittata*, or potato fly, being from five to six tenths of an inch in length. It belongs to the beetle family, and its wing cases are black, with a longitudinal stripe along the centre, of a yellow color; the margin is also yellow. The head is a light red color with dark spots on the top, the feelers are black, the thorax black with three yellow longitudinal lines; and the abdomen and legs, which are also black, are covered with a fine ash-colored down. Dr. Harris says this species of potato fly often appears in great numbers in the Middle and Western States, and does much mischief in potato fields and gardens, eating up the leaves of many other species of plants besides the potato. It is one of the insects to which the production of the potato rot has been ascribed. It is comparatively rare in New England, but there are two or three other species of blistering beetles common here, which are often confounded under the common name of potato flies, and it is still more remarkable that they are collected for medical use, and are sold by the name of *cantharis vittata*, without a suspicion of their being distinct from each other. The potato flies are easily collected by shaking them off in a tin vessel. A large tin pan is all the implement that is needed. To kill them, pour over them some scalding water and dry them in the sun.

[Spirit of Agr'l Press.

Influence of the Scion upon the Stock.

No point in vegetable physiology is of greater interest to gardeners than the influence, if any, of the scion upon its stock; or *vice versa*. It is a common belief that when the graft of one pear is worked upon the stock of another, neither is the graft influenced by the stock nor the stock by the graft. When a peach is budded on a plum the plum-blood seems not to be mingled with that of the peach, nor the peach blood with that of the plum. The peach is a peach and nothing less; the plum is a plum and nothing more.

Is this true? or are we here, as in so

many other cases, led astray by our blindness and inability to see what really exists. Perhaps so.

There is a green jasmine and a variegated jasmine. Apart, the green is always green. Budded with the variegated sort the whole system of the green sort is tainted, as it were, and breaks out into variegations. There is no conceivable explanation of this indispensable fact, except that the quality inducing variegation has been communicated by the one to the other. It is a true case of vegetable inoculation, using the word in its medical sense. Nor, indeed, can it be otherwise when we consider the facility with which the fluids of plants are transferred from one part to another. We may suppose that variegation is produced by some virus, or constitutional peculiarity, whatever it is, is certainly communicable.

A short memorandum by Purser, in last week's *Chronicle*, has led to these remarks. Everybody knows that what is called the purple Laburnum, or *Cytisus Adami*, is a laburnum that sometimes produces yellow flowers, sometimes purple ones, and sometimes bunches of the dirty yellow color that would be artificially formed by mixing purple and yellow on a pallet. In Mr. Purser's case the purple *Cytisus* (*Cytisus purpureus*,) was grafted on the common laburnum. Widely different as the species are, the one takes readily on the other. As soon as the union is effected the sap of the first begins to mingle with that of the second, and in a year or two the laburnum produces out of its own substance tufts of mere *Cytisus purpureus*, or bunches of flowers unchanged indeed in size and form, but completely altered in color.

Here then are two notorious cases, the history of each perfectly ascertained: in one case the sap of a variegated communicates the *variegation* to a green plant; in the other case the sap of a totally distinct species communicates to another not merely color, but form, size, and every other *specific attribute*. If then, in the two cases before us, such striking changes are producible, we are fully justified in assuming that similar changes, greater or less, will inevitably attend the union of any other two plants. We must regard such changes as resulting from some constant

law, although we may continually fail to perceive its presence.

This being the case, one of the most important of all inquiries in horticulture is the extent to which the diffusion and blending of the qualities of graft and stock really go. Not that the subject has been hitherto overlooked, but because we have as yet no such precise evidence as is demanded in a question of this degree of importance, gardeners are apt to think that any stock upon which a graft will take is sufficient for this purpose. No greater error could be committed; it has been pointed out in our columns on former occasions; but the practice of disregarding the stock prevails extensively, and no series of experiments, carefully continued and conscientiously recorded, has as yet been brought to bear upon it.

In the Theory and practice of Horticulture, (p. 356) the subject has, indeed, been introduced, and some evidence upon it collected, as will appear from the following extract :

" Since the quality of fruit is thus affected by the stock, it seems allowable to infer that the goodness of cultivated fruits is deteriorated by their being uniformly worked upon stocks whose fruit is worthless; for example, the almond or the austere plum can only injure the peaches they are made to bear, the crab, the apple, and so on. On the other hand, if trees of excellent quality were used for stocks they ought to improve the fruit of the scion that is worked upon them. Some German writers, proceeding upon such reasoning as this, recommend gardeners to practice the art of 'ennobling' fruit trees by taking the best varieties for stocks instead of the worst; and they assert that, by such means, the excellence of fruit is greatly increased. Trefez is represented by Meyer, as translated in Taylor's Magazine, to have made known as long ago as 1803, several instances of ennobling, from which it appears that apple trees twice ennobled, bore fruit of distinguished excellence; currants and gooseberries improved after one ennobling, and much more so after the operation had been repeated three or four times. An apricot is said to have been worked on a Green Gage plum, and a quince upon the Autumn Bergamot pear; the apricot became as juicy as the Green Gage, and far more

delicate; the quince was much more tender and less gritty.

Is there no one in this country with the necessary leisure and address to verify these statements, which at present stand unconfirmed although uncontradicted. Surely, considering how much hybridizing has done for us, the question now proposed, which is second to nothing in importance, can hardly fail to meet with the same zealous and skilful examination.—*Gard. Chron.*

Farming in Connecticut.

It will be seen by the following table of Census of 1840 and 1850, that farming in this State is not in a very prosperous condition.—There is a vast deal of industry and economy practiced by Connecticut farmers, but nature has been sparing of her blessings on much of the land in this State. In a pecuniary point of view, could one-third of her farmers transplant themselves to the fertile soil in this State, and practice the same economy and industry, they would find themselves enjoying, in the course of a series of years, a very respectable competency. Such is the poverty of a considerable part of the soil of the "nutmeg State," it is impossible for its occupants to look forward with any degree of assurance to anything but a life long struggle with poverty. The interval of the Connecticut river is equal to the soil in any state and pays a good profit to those who improve it. Connecticut can boast of many pretty villages which would be an honor to any State, every shingle is in its place, every blind in its proper position, and the whole house well painted, with all the surroundings kept nice and tidy—every chip and bit of rubbish picked up, all necessary materials packed away.—That finish to every thing which is so apparent there, is yet to be introduced into our State.

See what the Census says:

Between 1840 and 1850, there was a decrease In horses, asses and mules, from

In neat cattle, from	34,650 to	26,928
In sheep, from	238,650 to	212,675
In swine, from	403,462 to	174,181
In wheat, from	131,961 to	76,472
In rye, from	87,009 to	41,762 bushels
In oats, from	737,424 to	600,893 "
In potatoes, from	1,453,262 to	1,258,738 "
In buckwheat, "	3,414,238 to	2,689,805 "
In corn there was an increase from	303,043 to	229,297 "
	1,500,441 to	1,935,045 "

And in hay, from 420,704 to 516,130 tons.

The *Homestead* truly remarks: "These tables may not be entirely accurate or reliable, yet, making every allowance required, the general results are unmistakable. In animals and stock of every kind, raised or supported upon

the soil, there was a lamentable decrease. And the general deterioration of the soil is most correctly shown by the diminished quantity of rye, oats and buckwheat, for these are the principal crops which are sown without manure.— At the same time there was an increase in hay, owing mainly to the season, and a very great increase in Indian corn, owing partly to this cause, and partly to the influence of agricultural societies; for one of the first results everywhere, of their influence, has been an increase in that great staple.”—*Agricultural Press.*

◆◆◆
Rearing Beef Cattle.

In looking over a recent report of the New York Cattle market, the number of beeves sold on the great sale day for one week was 2,579 against 3,195 for the week previous which is 1,022 head less than the average per week for the year 1856. In addition to these there were sold the same week 712 veal calves, with lambs and swine to increase the whole number of head sold in one week to 11,260. Of the number of beeves reported for this week 996 were from the State of Illinois, and 680 from Ohio, besides a considerable number from Indiana and Iowa. This entire lot was sold at prices ranging from 10½ to 12 cents per pound. What the advance is upon these prices at the retail market we do not know, but presume that the retail price is not far from 10 to 15 cents per pound. In the week following, ending April 15th, there were sold in the same market 3,384 head of beef cattle, and including calves, sheep and swine, the number was extended to 15,776. Of the beef cattle there were 935 from Illinois, 796 from Ohio, and 368 were from Indiana.—

At these rates we do not know how a farmer can better dispose of his grass, corn-stalks and grain than to convert them into beef. Stock raising is one of the most pleasant, as well as profitable branches of farming. It requires less toil, while at the same time the feed that is consumed upon the farm, and the returns made to the soil in the form of manure, is a matter of the first importance to the farmer. In selling hay and grain from the farm, there is a constant drain upon the soil, that without the best management will lead to ultimate sterility, while if the crops were consumed upon the farm, the improvement resulting therefrom to the soil, would, in some instances, equal the interest upon the value of the land. With a little care in the

preparation of the food, calves can be raised with a small proportion of milk.—*Valley Farmer.*

From the Richmond Whig.

Exports of Breadstuffs from U. S. to Great Britain and Ireland. Inspections of Flour in Richmond for the last three years.

The exports of breadstuffs from the U. States to Great Britain and Ireland, this season, thus far, have been as follows:

	1855-6.	1856-7.
Flour, barrels,	1,134,731	842,051
Wheat, bushels,	4,644,587	7,241,115
Corn, do	6,380,884	4,600,228

And to the continent—

Flour, barrels,	649,241	412,857
Wheat, bushels,	2,250,312	2,808,867
Corn, do	246,965	524,375
Rye, do	1,755,873	216,162

The inspections of flour in Richmond during the quarter ending to-day (June 30th,) and the corresponding periods of the three preceding years, were as follows.— The falling off, as compared with the same quarter of 1856, is 33,447 packages, but the quantity inspected exceeds the average of the three preceding years (57,035.)

	1854.	1855.	1856.	1857.
Family, bbls	958	512	656	275
Extra, “	1,723	1,608	2,346	2,522
Superfine, bbls	44,450	10,686	66,856	48,165
“ hlf. bbls	2,321	252	2,522	3,045
Fine, bbls.	2,701	1,490	5,973	1,287
Middlings, bbls	5,072	1,538	11,073	6,527
Condemn'd, “	2,308	691	6,660	818
	58,373	16,646	96,086	62,639

The following is a comparative statement of the inspections of flour in this city during the year ending to-day, and the three preceding years, ending June 30th. The increase for 1856-7 would have been much larger but for the protracted interruption of the navigation of the canal last winter, and recently:

	1854.	1855.	1856.	1857.
Family, bbls.	5,600	5,204	4,972	5,163
Extra, “	10,829	9,751	7,844	17,265
Superfine, bbls	374,080	291,682	365,577	399,778
do hlf “	13,802	6,146	15,496	15,215
Fine, bbls.	15,748	10,253	18,172	12,357
Midd'gs, bbls.	80,171	23,692	37,047	48,613
Condemn'd “	7,186	3,863	15,294	6,460
Total p'kgs.	450,515	351,041	466,402	504,851

Wolf Teeth in Horses.

I have had occasion to examine some 20 or 30 horses that had the Wolf Tooth, or more properly the blind tooth, and have always saved the eyes of the horse, if the tooth was knocked out in time. I have repeatedly found that the eye was most affected on the side on which the largest tooth was. The last case I saw was a valuable mare of my own. She has a clear hazel eye, of the medium size. I found her about eighteen months since with both eyes closed. Upon examination, I found the wolf teeth. I knocked them out, and in five days her eyes were perfectly well, and have been so since.

The wolf tooth is situated in front of the jaw teeth, and is best knocked out by placing a piece of hard wood about an inch wide, two-eighths thick, and one foot long. Place the end of the wood against the tooth from the opposite side of the mouth to the tooth, and strike it a smart blow with a hammer, and it will be displaced. It is often the case that the horse has only one wolf tooth and only one eye affected.

A SUBSCRIBER
in Spirit of the Times.

Lameness from Contracted Heels.

A farmer of Niagara county, New York, states some important facts in relation to the proper and improper way of shoeing Horses. He says:

"About six months since I adopted a plan for the cure of this complaint, which has been so successful in three cases, that I am disposed to communicate it. My opinion is, that nine-tenths of the founder'd horses are made so by the shoer. For a number of years my horses were shod by one man, who fitted his shoes very carefully—opened the heels handsomely, by trimming the frog and the heel of the hoof, and thinned the sole nicely, taking off all appearance of bars—making the shoe nearly straight from the ball of the foot to the heel. First, one horse became lame in one foot, then in the other; soon another one began to be lame, and in spite of all our experiments, the third one was beginning to show the effects of this shoeing, when I changed the practice. Now the two latter are perfectly sound, and the first one, that had become so bad that it was painful to drive her even upon a walk,

is so much improved that she feeds and acts like a different animal. Now for the plan.

"Pare the foot pretty close; thin the sole in front of the bars, but cut no more off the bars than that the shoe may not press upon them; fit the shoe to the shape of the foot, making it come fairly under the heel of the hoof and as wide as you can have it and get the nails in. Do not open the heels—at any rate cut nothing from the frog, whether ragged or not; if you choose you may take a very little from the heel of the hoof where it comes in contact with the frog, but the practice is questionable. I think the bars and the frog are intended to keep the heels apart; therefore, save all the strength you can in the former and do not disqualify the latter from accomplishing its object by putting it away so that it cannot come in contact with the heels. Now cultivate the growth of the frog by applying daily either soap and tar boiled together, or soft soap, or urine, which I think best of all. Take up the foot, clean it out carefully, and make your application to the sole of the foot, the frog and the heel. Standing in mud of blue clay for a few hours every day, is excellent.

CURE FOR BOTS IN HORSES—Drew's *Rural Intelligencer* says, an intelligent gentleman of our acquaintance, who has for years been largely concerned in the management of horses, called at the *Rural* office a few weeks ago, to say that he knew, by experience, of a remedy for bots in horses, which is sure to expel them from any one of the race afflicted with those dangerous insects. The medicine is nothing more or less than common fish pickle, that from mackerel is perhaps best; one common junk bottle full will generally dislodge the "varmints"—sometimes a second one may be necessary. To use his own words, this is a perfect cure—no mistake. Some persons mistake the belly ache for bots. The latter may be known by the horse drawing down his tail, and giving it a peculiar motion. There is no such appearance in cases of mere bellyache.

While the cultivation of the soil engages your attention, do not neglect the cultivation of your mind.



THE SOUTHERN PLANTER.

RICHMOND, VIRGINIA.

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All money remitted to us will be considered at our risk *only* when the letter containing the same shall have been registered. This rule is adopted not for our protection, but for that of our correspondents; and we wish it distinctly understood that we take the risk only when this condition is complied with.

It is indispensably necessary that subscribers remitting their Subscription, should name the Office to which their papers are sent; and those ordering a change should say *from* what to what post office they wish the alteration made. A strict observance of this rule will save much time to us and loss none to them besides insuring attention to their wishes.

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RUFFIN & AUGUST, *Proprietors.*

OFFICE: No. 153, Corner Main and Twelfth Streets.

Farmers' Assembly and State Agricultural Fair.

The time for the choice of delegates to the FARMERS' ASSEMBLY of the VIRGINIA STATE AGRICULTURAL SOCIETY is at hand. Elections are to be held throughout the State,—under the supervision of Commissioners appointed for the purpose—on the first day of the September term of the County or Corporation Courts in every county in which there are any resident mem-

bers, and in such towns or cities as are entitled to hold separate elections. The interests committed to this body by the constitution of the Society, are too momentous not to excite its members to a due anxiety in regard to the election of suitable persons from among themselves to be invested with the honourable and responsible trust, of representing their character and interests in that Assembly. The only fear is that through mere inadvertence the subject may be overlooked or forgotten, and therefore their attention is called to the subject at this time, by way of remembrance. This Assembly will meet on the first day of the next Annual Exhibition of the Society—namely, the 27th of October. With respect to what that Exhibition shall be, it is too early to speak with confidence. Preparations are making by the Executive Committee, with an amplitude of provision which implies an unwavering faith on their part, that it will not fall short of the best of its predecessors, but after all, the success of our Fairs must always depend upon the Farmers themselves, as the means which are necessary to determine their character are in their own hands. Let them supply the *personnel and matériel* of the occasion in a manner worthy of her children, and Virginia, the “blessed mother of us all,” will be proud to acknowledge that our fifth annual exhibition is worthy of HERSELF.

Meadows.

A subscriber from Hillborough, North Carolina, requested us some time ago, to say something “on the preparation of meadow land, and the best kind of seed for low ground, and for meadow ditches, blind ditches, &c.”

We have intentionally delayed an answer until the time for such things approached, that it might be convenient for our friend to refer to it if he should esteem the answer worth consideration, just when the time came; and that it might meet the eyes of other persons who designed making meadows. Most people prefer to prepare them in September, and, when they do not propose to seed grass along with grain, to sow their grass seed in the same month. This latter practice we think wrong, and we shall state the wherefore in the course of this article.

Our correspondent's questions are pretty wide, and knowing nothing of his land, and its

peculiar adaptability to peculiar grasses, we shall be compelled to give a general answer, leaving it to his discretion to appropriate such part thereof as may seem proper to himself.

And, First, Shall a man have a meadow at all? It is generally taken for granted he should, and nearly every agricultural paper urges its readers to grow grass. We do not, by any means, think it of such universal necessity or even expediency, but a matter in the sound discretion of the farmer, in view of his crops, his stock, his land, and his markets.

It is true, that last spring and in the early summer, a large district of Virginia drew its supplies of hay from the North; and North Carolina was, in part, supplied from the same source. Such hay was in many instances no better than wheat straw, *not as good as wheat chaff*, and was known to be an inferior article when sent here, as the inspection of any New York price current will convince him who examines it. It was discreditable to the farmers of the districts indicated to be thus forced to pay tribute, where we already pay too much, and to be compelled to pay a high price for an inferior article; but the discredit lay in not taking care of the provender they had, not in the failure to raise provender of a different description. True, they had chinch bug to contend with, which reduced their supplies; but equally true, they had learned to waste those supplies, and in many cases rotted the material they should have carefully preserved. Here, near Richmond, we have known experienced farmers to rot their chaff, and feed clover hay to mules, when it was \$20 to \$25 per ton in the market, whilst we, following the practice which we learned in another region, have kept hard-worked teams in fair order without a spire of hay or of pulled fodder. Nor is hay necessary even to fatten stock. The beef we formerly sold, and which always commanded fair, and, in some cases, very high prices, was produced without hay; and if any bullock of ours ever got a wisp he stole it.

The Yankee who sells us hay, prides himself on the fact as an evidence of his superiority in agriculture, forgetting that he can raise neither tobacco, wheat, rice or cotton, that and the profit of a hay crop on the average of lands is inferior to all of these, and not to be named by the side of some of them. So long then as

profit is the prime object of farming, the property of raising hay, either for food or for sale, is one which depends on a good many things that bare statistics make no mention of.

So much for hay. But if grass be the object the question is very different, as few of us have enough of that article, which is not less necessary to teams than to cattle, sheep, and hogs; and without which insufficiency none but regions approaching the tropics have kept up the fertility of land under constant cropping.

The preparation of ordinary lands for meadow is a very simple thing. If the land is wet, dry it; if from any cause that cannot be done, and a crop of wheat may yet be taken from it, crop it in corn and keep it clean, then sow wheat after the corn, not earlier than the middle of October; and *later* if you are not afraid to risk the winter-killing of the wheat. After the wheat is harrowed, the *moment* after if you can, whilst the ground is still fresh from the harrowing, sow your grass seed, and cover them with a bush; the shallower they are put in the better.

On land that cannot be drained, sow what we call herds grass, and the Yankees red top and the Botanists, *agrostis vulgaris*. If the land is too wet to be cropped as above, sow two crops of oats in succession to cleanse the land—it will *not* impoverish it—and sow the red top with the second crop, and do it as soon as the returning warm weather will permit you to trust the oats to the ground.

If the land be still too wet for oats, and yet fit for grass, though we can hardly suppose that, plough it in the fall and bed it high; plough it again in spring to kill the sprouting seeds of weeds, reversing the beds the fall ploughing made; repeat the operation with single plows or light cultivators as the successive crops of weeds or marsh grasses spring up, and *before* they seed, and sow the land in September. Sow of herds grass a peck to the acre—the seed is cheap.

If the low ground be of a different character, (drier, whether naturally or artificially), and in a good state of fertility, then sow it in wheat with or without a preceding crop of corn as your judgment dictates; and with the wheat sow two gallons of timothy per acre, brushing it in with a bush after the wheat as directed for herdsgrass. In the spring, if the land will produce clover, sow it on the timothy

at the rate of a gallon per acre. It will protect the timothy from the hot sun the first year; will give a good crop of its own hay the next; and will then yield to the timothy, which is, by that time, ready to take possession of the land.

On good low grounds this is sufficient to give a good stand of timothy.

Some persons advocate sowing the timothy by itself. We do not. The same labour of preparation will answer for both crops, and the crop of wheat will be worth more than the crop of hay—the shade too of the wheat in early summer will do more to protect the timothy than the increased drought upon the soil will do it harm.

We recommend the latest period of wheat sowing for the accompanying crop of timothy; and for two reason: 1st, Young timothy is very sensitive to heat, and indifferent to cold. If a drought occurs in the latter part of October, as it frequently does, the timothy is apt to be killed; whereas it is very hard to freeze it out of the ground in any weather, and it will grow from the merest rootlet that is fixed in the soil, as wheat is often observed to do. 2d, If the fall is moist, and the land good, it is very apt to interfere with the growth of the wheat, which it injures in filling, impedes the reaping, and renders it more difficult to dry out the shocks or dozens.

Timothy ought not to be grazed hard until the sod becomes well formed; it pulls up too easily. But after that it may be grazed profitably to itself and animals as soon as it gets a good growth of aftermath. Indeed, we have known two lots of timothy sod to be rooted over by little pigs in early winter, and if there was any change in the grass afterwards, it was for the better. But we do not recommend the plan.

We advised the seeding of clover with timothy; but it was for a specific purpose, and not for the sake of a mixture of grasses. For hay, we do not approve such mixtures. Except clover and orchard grass, the others seed at different times, and cannot therefore be properly mowed together.

We have said nothing here about sowing orchard grass, which we esteem very highly, because the seed are very high, and because if it is not mowed at the proper time, it becomes hard and sticky, and is not then relished by

cattle either as grass or hay. But for early and late grazing, especially for ewes in the early spring, nothing can beat it.

A great deal of trash has been published about the preparation of meadow land, especially as to the quantity and kinds of manure to be applied; and ashes and various composts have been directed. Very few farmers have those articles in abundance, and fewer still can buy them. Ashes are certainly very valuable on some, perhaps most soils, though we have seen them fail in a great measure when used without composting. But where they are valuable, they should be applied to a crop that pays. If hay pays, why then give them to the hay; otherwise keep them for a crop that does.

For ditch banks, which our correspondent asks about, and for the margins of spring branches and other streams in meadows, we prefer the red top, which is emphatically a wet land grass. But in all such cases let the bank be well sloped back. Never have a perpendicular ditch, least of all with the excavated earth forming a mound on each bank, except the ditch is intended to keep a stream from overflowing, and not merely to conduct ordinary currents. Graded properly, and sowed in the above grass, a turf is now formed, and the water course becomes a handsome object in the field.

Seymour's Broadcaster.

We try to be very particular in what we recommend, for every false recommendation recoils upon him who makes it. We thought, when we recommended Seymour's Broadcaster, that we were doing a service to the farmers. We rather doubt now if we did, and beg leave to make a statement of our trial with the machine. The first we sowed with it was oats, and it worked admirably. Then it was we recommended it. The next crop was wheat—early purple straw, a small-grained variety. It did well here too, except that it would not sow less than one and a half bushels per acre, and refused to obey the thumb-screw at a smaller gage. Then we wrote to Mr. Seymour about it, and he said it could be easily altered. Last Fall we tried it in wheat again, and it would not do at all; and we estimate that we lost half the cost of the machine on two beds of wheat by its failure. We wrote again to Mr. Sey-

mour, who replied that he was coming "South," and would call and see us. He has not done so; and we, without wishing him any harm, feel bound to say that the particular machine we use, made by him, will not do the work he said it would; and we hear a good deal of complaint of other machines, some, and perhaps most of them, but not all, made by his agents. We know two that it was impossible to use.

At the same time it is fair to state that we have known one of them for four or five years, which has answered, and continues to answer, remarkably well; and that we have the word of a gentleman, entitled to the fullest credit for the assertion, that he has known one to work perfectly well for twenty years. This would seem to show that Mr. Seymour has not done justice to those who trusted him here.

It is also fair to state that the grain drill, which he got us to operate for him here, is a very good one, as far as we can judge.

This puts all the facts we know before our subscribers, and makes amends, as far as the wish can, for an error of ours, by which we fear some gentlemen have lost money.

U. S. Agricultural Society.

We have received several circulars soliciting a notice of the above Society. We now give it and very briefly. We are sorry to say that we consider The United States Agricultural Society the greatest Agricultural humbug in the United States, except the Agricultural Department of the Patent Office.

We are happy to say that we do not know ten, nor five, members of that Society in Virginia.

We have no particular wish to say what we have said; but as a notice has been so frequently solicited, it is but candid to state our real opinion.

Magnum Bonum Plums.

The specimen of the above fruit alluded to by our correspondent below, were really very superior. They had been slightly mashed in sending, and the flavour was somewhat impaired thereby, and the weight a little lightened. Still they weighed $2\frac{1}{2}$ ounces each, and were in dimensions as follows:

No. 1, $6\frac{1}{2} \times 5\frac{1}{2}$ inches. No. 2, $6\frac{1}{2} \times 5\frac{1}{2}$.

They were nearly as large as a hen egg. We hope both amateurs and nursery men will avail themselves of the liberal offer of our correspondent. ED. SOUTHERN PLANTER.

PLEASANT GAP, Pittsylvania County, Virginia, Aug. 3d, 1857

Messrs. Editors of the Southern Planter:

Agreeably to a request I saw in the Planter, that if any of your subscribers had any thing in the way of extra fruits, they should send you a specimen, I have sent you two magnum bonum plums that we in this section consider extra fruit. I have ten bearing trees and have grafted and given away five hundred in the last five years in this neighborhood, and will be pleased to furnish any person that wants with any amount of twigs to graft, they may wish. They may be sent by mail, and any one wishing them, that will pay the postage, can have any amount they may wish gratis. I will pack them carefully, and forward them any time from December till May.

Yours, Very Respectfully,
THOMAS W. WALTON.

PROFESSOR GILHAM'S LECTURE TO THE FARMERS OF POWHATAN.

We extract the following account of the late Agricultural festival in Powhatan from the columns of the Richmond *Whig*.

In honouring Major Gilham for his gratuitous labours in Agriculture, the farmers of Powhatan honour themselves, and in thus encouraging gentlemen of scientific attainments and pursuits to devote a portion of their time to investigations, such as now engage Major Gilham, they set an example which may well be followed by other counties in the State. We doubt there are several Professors in our several Colleges who could spend a portion of their time in this manner, and would gladly do so if invited.

Major Gilham is no doubt well remembered for his examination of the different artificial manures which are now put upon the market. It could only have been from the best motives that he took upon himself the obloquy, which he must have expected to encounter in exposing the frauds which are perpetrated by some of these manure vendors on the ignorant or the credulous.

A highly interesting Agricultural Festival came off at Powhatan Court-house on Thursday, in honor of Maj. Wm. Gilham, Professor of Chemistry in the Virginia Military Institute. Major Gil-

ham, it appears, was invited by some of the farmers of Powhatan to visit that county, make an analysis of the soil, and give them the result of his experiments and observations in a public address. In a spirit of great liberality and disinterestedness, he undertook the task he was solicited to perform, and for the past month or six weeks, he has been travelling through the county, and making a chemical examination of the soil, and upon the conclusion of his labors, which were discharged without requiring or expecting a cent's compensation, he was appropriately and generously tendered a public dinner by the hospitable and intelligent farmers of Powhatan, as an evidence of their gratitude and their high personal respect and esteem. This entertainment, as we have said, came off at Powhatan Court-house, on Thursday—on which occasion a large collection of the farmers of the county assembled, and were treated to the able and interesting address, which we have the pleasure of spreading before our readers this morning.

The occasion in question was a truly interesting and delightful one, and is the harbinger, we trust, of similar ones in every county in the State. Judge Nash presided, and the speaker was introduced to the audience by that liberal, enlightened and whole-souled agriculturist, Philip St. George Cocke, Esq. After the delivery of Major Gilham's address was concluded, numerous other brief and appropriate speeches were made by gentlemen present. Among the number who spoke were Charles Carter Lee, William C. Scott, Col. H. L. Hopkins, William Old, Jr., John F. Lay, Dan. G. Hatcher, J. Ravenscroft Jones, of Brunswick, and several others. All of these gentlemen acquitted themselves in handsome style, and gave great pleasure and satisfaction to the audience. Mr. Old dwelt forcibly upon the vast and peculiar agricultural resources of the South, contending, that in the Southern States were alone produced articles of consumption which could be produced in no other quarter of the globe, and that, as a consequence, the manufacturing and commercial prosperity of the world was dependent upon the products of Southern labor. Mr. Scott's remarks were mainly a tribute to the character, the intelligence, the manliness, the independence, the high worth of Southern farmers and agriculturists as a class. He maintained, that whatever might be said about the deterioration of Southern soil, and the imperfect system which prevailed in its cultivation, the men who owned and tilled it were men in the highest and the truest sense of the word, and could possibly suffer no disparagement in comparison with those of any country on earth. Mr.

Lee's address consisted of an impromptu outburst of genuine wit, humor, anecdote and song, and was received with hearty demonstrations of gratification and applause. The remarks of several other gentlemen, were, likewise, exceedingly felicitous and appropriate, and evinced the interest and zeal felt by the farmers of Powhatan in the advancement of their noble and generous occupation.

We have neither the space nor the leisure to make other than a general and cursory allusion to the incidents of this interesting occasion. Suffice it to say, that it was one which reflected credit alike upon the learned and scientific gentleman it was specially designed to honor, and upon the kindness, hospitality, and devotion to the great interests of agriculture of the intelligent and liberal minded farmers of Powhatan. The table was supplied with the very best, and every thing passed off in the most pleasant and agreeable manner. We express the hope that the farmers of other counties will imitate the example of their friends and co-laborers of Powhatan, and thus stimulate themselves for the great work of continued improvement and progress which lies before them.

We conclude by giving place to the following sentiment—one among numerous others which was offered on the occasion, as it contains a high and well-deserved tribute to a couple of the most eminent and enterprising farmers in the State:

“Agriculture—The foster-dam of all other occupations and professions: All honor to a Ruffin and a Cocke for their noble efforts to dignify it, as the highest calling of man.”

CORRESPONDENCE.

POWHATAN C. H., }
Aug. 6, 1857. }

PROF. WM. GILHAM,

Dear Sir:—As a committee appointed by the farmers of Powhatan, at a meeting held at the Courthouse this day, it affords us great pleasure to inform you that, immediately after the delivery of your very interesting and able address upon the subject of agriculture and the soils of their county, they unanimously resolved to tender you their thanks, and to solicit a copy of it for publication.

Allow us to express the hope that you will still further gratify them by complying with the wishes of the meeting as above stated.

H. L. HOPKINS,
WM. W. MICHAUX,
HILARY HARRIS,
DAN. G. HATCHER,

POWHATAN C. H. }
Aug. 6, 1857. }

Gentlemen:—The lecture delivered to you to-day, was written for delivery to as many as felt disposed to meet me at the Court-house to-day, and without any design or expectation of its publication; I cannot, however, refuse a request couched in such flattering terms, and therefore place the manuscript, with all its imperfections, at your service.

I am, gentlemen,
Your obd't servant,
WM. GILHAM.

To Messrs. Hopkins, Michaux, Harris and Hatcher—Committee.

GENTLEMEN:—After spending a few weeks in your midst for the purpose of making something of an agricultural survey, an undertaking suggested by your countryman, Col. Philip St. George Cocke, who is ever foremost in every enterprise which has for its object the advancement of agriculture, I appear before you to-day, at the instance of a committee of the farmers of the county, as a lecturer on scientific agriculture. As I came among you to make your soils my study, it seems to me that I could not better occupy the time on the present occasion than by directing your attention to those processes by which the barren rock is made to yield a soil suited to all the wants of man; how in obedience to the operation of a few simple laws, fertility of the soil not only results, but provision is made for its restoration, after it has been destroyed, through man's cupidity or ignorance; and what principles should, in my estimation, govern you in your efforts to improve your soils.

All scientific men of the present day, who have given the subject due attention, agree in referring the origin of soils to the disintegration or breaking down of rock, and by far the greater portion of them, to the disintegration of the rocks which immediately underlies them. That most soils are formed in this way, would almost seem to be a self-evident proposition, but as this announcement is no doubt new to many of you, I propose to direct your attention to a few examples, so that those who desire it, may verify the truth of the assertion, by their own observation. It is found that certain characteristics of soil invariably attend certain geological formations; thus

in a limestone region, such as our valley, we meet with soils of a peculiar texture, and specially adapted to certain crops; over sandstones we invariably find light sandy soils,—while over a region of pure granite we meet with cold and generally light colored clay soils, of a most unpromising character. In the valley the soils resting upon limestone are productive, and susceptible of a high degree of improvement; clover is grown without difficulty; while the finer grasses, as soon as the fields are turned out, cover the soils to the tops of the highest hills. The limestones are bounded on the east and west by white sandstones,—which cover large areas in many places, and on these rest soils which it would be almost as impossible to improve, as the land upon the seashore. In your own county, there are certain characteristics common to all the soils resting upon what are popularly known, as the granite rocks; but in the lower part of the county bordering upon Chesterfield, where the soils rest upon entirely different rocks, we find them very different, they are lighter, and not susceptible of the same degree of improvement that the soils in the other portions of the county are.

But this is not all; a careful examination of railroad cuts, of cuts for common roads, or even of the gullies on the road side, or in old fields, supplies us with abundant evidence of the foundation of soils from the rock which underlie them, for then we can trace the gradual transitions, and all the gradations from the hard rock to the fertile soil. At one point a particular ledge of rock yields a white clay, near it another may fall down to sand, another may break down to a tenacious red clay, while it is not unfrequent to meet with a cut which preserves all the lamination and stratification of the original rock, and seems at a short distance to be the rock unaltered, when in fact it is completely decomposed, leaving soft laminae of differently colored clay and sand, which only require mixing to resemble the ordinary subsoils of the county in every particular.

Again, you are all, no doubt, familiar with the fact that, there are certain rocks to be found in numerous places in the county which if left upon the land, soon melt away as it were in the soil, and become part and parcel of it, changing its color and texture in the places where they laid,

and not unfrequently proving to be a positive benefit to it.

The agencies which effect the decomposition and disintegration of rocks, thereby producing soils, are the elements of the air, water and frost; at one time the carbonic acid of the air attacks some particular constituent of the rock, and thus commences the work, which is afterwards carried on by water and frost; at another the oxygen of the air is the active agent, while in many other instances both are engaged in the work, one attacking one substance the other another. Sometimes some particular substance becomes more or less soluble and is removed by running water, leaving the soil to be formed mainly from the remaining substances, while at other times a simple disintegration or falling apart takes place. Some minerals are impervious to water, and can only be acted on externally, while others possess what is called *clearage*, and split in certain directions, permitting the access of water, and the elements of the air to the interior, whereby the action, whether chemical or mechanical, is hastened. On every particular mineral which composes the rock, the decomposing and disintegrating action is peculiar, and it becomes a matter of importance to be able to distinguish the minerals which compose the rocks of any particular region, and to follow the changes which take place in the metamorphose of the rock into soil, if we expect to derive any practical advantage from a study of the relations subsisting between them.

This will appear more clearly, after I have illustrated it by a few examples.

The limestones of the Valley are composed of lime, or more properly of carbonate of lime, a compound of lime and the gas carbonic acid, with clay, and magnesia, together with minute quantities of all the other mineral substance necessary to a fertile soil. Pure water has no effect upon these soils, but water which contains the carbonic acid gas which it has absorbed from the air, has the power of dissolving out the carbonate of lime, or pure limestone, leaving the clay and the other constituents to form the soil. This explains the fact that in limestone countries the water is always hard, that is highly charged with lime, and why it is that so many soils resting upon limestones, contain as little lime as soils resting upon various other

rocks. Many sandstones, on the contrary, are reduced to soil by simple disintegration, or the falling apart of its particles. Common Slates were, when formed, deposits of fine clay or mud, which having been washed off from dry land, were carried by running streams into the ocean; in process of time they became hardened, and in the changes of the earth's surface became dry land a second time. These rocks when long exposed to the influence of the air, are reduced to soils which necessarily bear a very close resemblance to the original materials of which they were composed. They are generally very fine grained, close clay soils, very retentive of manures, but hard to cultivate. Some of them if properly managed, are unsurpassed in fertility—Common granite is composed of the three minerals, quartz or flint, felspar and mica or isinglass, the name by which you all know it; and although granite is one of the hardest rocks, it crumbles to soil by long exposure. In this instance the felspar, which is composed of silica, alumina and potash, or to be less technical, of clay and potash, is decomposed; the carbonic acid of the air attacks the potash forming with it the carbonate of potash the same substance as common pearl ash. This substance is soluble in water and is removed as fast as formed, leaving the clay. The quartz and mica remain unchanged, and in the process of reducing the rock to soil, one is reduced or broken up to sand, the other to small scales which are diffused through the soil. Soils formed from such rocks are generally cold and sterile clays, deficient in several necessary mineral constituents, and susceptible of every limited improvement. But should the mineral hornblende take the place of mica, the rock thereby becoming that known as *syenite*, or should the rock be composed of all four of these minerals, viz: quartz, felspar, mica and hornblende, which is not unfrequently the case, then we have in the rock such an assemblage of minerals, that where the decomposition is effected, we have all the mineral elements of fertility in the soil.

These examples, without going into lengthy details are sufficient to show how dependent soils are upon the rocks which underlie them, and how necessary it is to know something of the geological features of any particular district, if we would ex-

pect fully to appreciate the soils of that district.

Alluvial soils, such as the James river low grounds, are deposits from running streams, and are composed entirely of material that has been carried from the washings of the highlands bordering the streams higher up; what I have said in relation to the connection between the soil and its associate rocks, is not, of course, applicable to them.

We all know, however, that a soil, no matter how formed, or what mineral substances it contains, cannot be fertile without an appreciable, but variable proportion of *organic*, or animal, or vegetable matter: that the organic is just as necessary as the mineral matter, and that no amount of the latter can replace the former, or make up for its absence. We may learn a useful lesson by following the process by which nature makes provision for the presence of organic, in the present instance, of vegetable matter, in all soils, and how provision is also made for its continuance.

The disintegrated rock containing no organic matter is sterile, yet it is not absolutely so, *something* vegetable will grow upon it; but since the soil is destitute of organic matter, the organic food of these plants, that is, that portion which is to form the vegetable portion of the plant must be derived exclusively from the air. The first growth must, therefore, be peculiar, and very limited in extent. By the death and decay of this first race of plants, or by the dropping of the leaves, a small deposit of vegetable matter is made in the soil; or the plant becomes the agent by which a transfer of material, valuable, and even necessary to vegetation, is made from the air to the soil. This process goes on from year to year; each year larger additions are made to the soil than on the preceding, and each year its productivity is increased. Perennial plants, such as shrubs and trees, take root and grow, whose roots, penetrating far into the subsoil, bring up fertilizing matter from it, a part of which is deposited in the plant, while a large portion is carried into the leaves, which they, in their fall, deposit in the surface soil. Thus, the native forest, while it clothes the land in beauty, also draws supplies of organic or vegetable fertilizing matter from the air, and of mineral fertilizing matter from the subsoil, a

large part of both of which are given to the surface soil, in the annual *top dressing* of leaves, dead branches, &c., thereby gradually fitting it for all the wants of agriculture. Thus, too, do we see, that in proportion as the soil becomes more productive, does the air become more lavish of her gifts; the naked and sterile field calls in vain for aid from the overspreading air, while the soil of the forest, in producing a prolific vegetation at the expense of the air, is only acquiring the means for producing one yet more prolific.

But this beautiful natural process is not confined to soils that are just forming; we see, that after every successive crop, shrubs, weeds or grasses spring up almost as soon as the crop is removed; and it is a fact well known to you all, that the strength of the soil will have a material influence upon the character of the vegetation.—And when the soil, by long continued, and injudicious cultivation, is worn out, and no longer capable of producing crops, it (if turned out) puts a growth, which, in the course of time, restores it measurably, if not entirely, to its original fertility. This process of restoration is going on every where, and no where more extensively than in this county; the thousands of acres of old-field pines growing up every where around you, show at once how grossly the laws of nature were violated by the original proprietors of the soil, and their successors, and how a kind Providence is restoring it to you, and at the same time pointing you to the means by which you may profitably cultivate and improve it.

Having said this much in relation to the general origin of soils, I propose now to direct your attention to the processes by which your own soils have been formed, and what conclusions can fairly be drawn from a careful observation of them. In order, however, that you may the better understand what I shall have to say in relation to them, it will first be necessary to occupy a short time in giving you something of an outline of the geological features of the county, and call your attention to the principal minerals composing the rocks.

The rocks which compose that portion of the earth's surface which is accessible to man, are divided by geologists into two great classes, the *stratified* and the *unstratified*. The stratified rocks are, as their name implies, composed of successive

layers or *strata*, of varying thicknesses, the layers being separated by smooth surfaces, which are parallel, or nearly parallel to each other. The unstratified rocks, on the contrary, are composed of masses, some of which are of enormous extent, in which nothing like stratification is observable.—They sometimes occur overspreading the stratified rocks as the lavas of our day overspread the rocks of all ages, at others they occur underlieing them, while at others they occur as immense walls or dykes, or in veins, filling up fissures that have been made in them. The stratified rocks are universally admitted to have been deposited as regular layers of mud, sand, clay, marl, and sometimes gravel, under water, generally the water of the ocean, the material composing them having been formed from rocks of an older date, which constituted the continents then existing, and which were worn down and washed away by rains, &c., just as they are in our day.

These layers, in process of time, and through the instrumentality of various agents; whose operation I have no time to dwell upon or explain, became solid rock, and, through the agency of the internal heat of the globe, whose reality and powerful influence is proven by the existence of 300 volcanoes, and the occurrence of numerous extinct ones, were raised out of the water, and became dry land. The unstratified rocks can be shown to have had their origin in eruptions of melted matter from the interior of the earth, just as lava is erupted at the present day; that they, no matter where they are now found, were once in a state of fusion, by the internal heat of the globe, and were forced into their present positions while in that condition. From what has been said, it must be apparent that the various rocks, both stratified and unstratified, which compose the present surface of the earth, were formed at different times, and under different circumstances—it is the province of the geologist to classify the different formations into which they may be divided in a regular chronological order. Now, in classifying the rocks from the top of the Blue Ridge to the falls of the large rivers, as at Richmond, or to the head of the tide, it is found that the whole area, including, of course, this county, excepting certain very limited portions, is composed of rocks

of a very ancient date, in fact, the very oldest of the stratified rocks. These rocks while they differ very materially from each other in various portions of this extensive district, are all destitute of any traces of the animals and plants whose remains are found in such numbers in the other stratified rocks; they are, moreover, highly crystalline in their structure, which is a proof of the fact, that at some time subsequent to their deposition, they were subjected to violent and long continued heat, by which the chemical affinities at play were so increased as to cause the formation of numerous distinct minerals, and at the same time to obliterate all traces of organized beings, provided there were any embedded in them when they were first formed.—These rocks, from the fact that they have been thus altered by internal heat, are said to be *metamorphie*, or altered rocks, and from the circumstance of their belonging to the most ancient class of stratified rocks, are also called the *primary* stratified.

As I have before remarked, these rocks contain numerous minerals; but the most abundant and commonly occurring are quartz, felspar, mica, hornblende and talc. Quartz is well known under the name of flint; this mineral is more abundant than all the others put together; it is well known to you all, and requires no explanation from me.

Felspar is a white or flesh colored mineral, which is not so hard as quartz, and which always breaks in particular directions, in consequence of its having the property known as cleavage. This mineral is composed of silica, the same as quartz or flint, *alumina*, the active principle and base of clay and *potash*, with minute portions of some other bodies.

Mica is the mineral known among you as *isinglass*, it is very soft, and occurs in elastic scales, of every size from the most minute particles to plates two or three feet across. This is composed of pretty nearly the same substances as felspar, with the addition of a little oxide of iron; and, although it may be split into scales of exceeding thinness, the elements of the air have but little effect upon it.

Hornblende usually occurs as a tough, dark colored, and even black mineral, not quite so hard as felspar; it is composed of *silica*, *alumina*, the basis of clay, *lime*,

magnesia and the *oxide of iron*, together with minute portions of such other substances as are usually found in soils. Talc is a soft mineral, of a light green color, generally, and greasy feel; but as it does not occur in the county to my knowledge, further description is unnecessary.

Now, the different combinations of these minerals, taken two and three, and sometimes four together, constitute the great mass of the rocks of Eastern Virginia, as far down as the head of tide. A combination of quartz, felspar and mica constitute the rock known as *gneiss*, but which generally goes under the name of granite, from the fact that true granite, which is an unstratified rock, is composed of the same minerals as *gneiss*, and can only be distinguished from it by its total absence of stratification. Combinations of quartz and mica yield mica slates; of quartz and hornblende hornblende slates; of quartz and talc, talcose slates. These various rocks frequently run into each other by insensible gradations, giving rise to numerous varieties.

The rocks found in this county, above the coal region bordering on Chesterfield, are *gneiss*, *mica slate*, and *hornblende slate* in all their varieties, together with occasional masses or dykes of an unstratified rock, known as *trap rock*, and which is composed of the minerals felspar and hornblende.

Among the *gneiss* rocks it is no uncommon thing to find the four minerals, quartz, felspar, mica and hornblende, making a hornblende *gneiss*; sometimes the mica disappears altogether, while at others both felspar and mica are wanting, leaving a true hornblende slate. These rocks are usually interstratified with each other, so that no one of them is ever found to cover any very large area alone, but in every locality we find more or less of them all, a fact which will be found to be of importance when we come to consider the soils of the county.

I have already adverted to the formation of soil from granite; now since granite and *gneiss* are the same chemically, the remarks made in reference to granite are equally applicable to *gneiss*. A soil which results from the decomposition of pure *gneiss* or *mica slate*, is necessarily more or less barren, the rock does not contain all the necessary elements of fertility, or if it does, numbers of them are in such small

quantity as to forbid the idea of lasting fertility. But if to the minerals already present in these soils, we add hornblende, we then have such a combination that fertility in the soil which results from their decomposition is a necessary consequence.

Everywhere that I have been in the county, and I have ridden over it in several directions, wherever I find the rocks, whether in the surface soil, in the bottom of creeks, on the hill side, or at the bottom of gullies on the roadside, I find that the rocks contain this truly conservative mineral; and when I cannot discover the rocks for its covering of earth, I can trace its former presence, in the deep red color, which in its decomposition, it imparts to the subsoil clays of the county. I conclude, therefore, that while they differ in different sections, resulting from differences in the proportions of the minerals present in the rocks, and from other modifying causes, the soils of this county were all, or nearly all, originally fertile, and some of them as much so as any to be found in Eastern Virginia. Nay more, I conclude that worn out as thousands of acres of your surface soils now are, your subsoils contain almost inexhaustible stores of fertilizing matter, which has only to be brought into the surface soil to restore to them the fertility of which they have been robbed by the impoverishing system of cultivation which so long prevailed.

But let us look a little more clearly at the process by which your soils have been formed, and to some of their physical characteristics. The universal prevalence of quartz over the other minerals gives rise to soils in which sand is the leading constituent; whenever the rock is of coarse texture, that is composed of large crystals, the quartz, instead of all falling down to sand, fills the soil with gravel, or strews it over with masses of flint. The felspar, under the prolonged action of the carbonic acid of the air, is entirely decomposed, yielding clay containing more or less potash. It sometimes happens that a ledge of *gneiss* is composed mainly of felspar, and when that is the case, the subsoil, so long as it remains undisturbed, is white; examples of streaks of white clay in the gullies, in old fields, or on the roadsides, are not uncommon, and whenever they are carefully examined, the felspatic *gneiss* is sure to be near.

Nearly all of the hornblende that I have seen in the county is of a deep black color; in its decomposition the protoxide of iron, which imparts the black color to the mineral, absorbs oxygen from the air, and becomes of a deep red color, which it communicates to the clays with which it is associated; while particles of the lime, magnesia and other elements of fertility, present in the mineral, fall down in the forming soil, and contribute largely to its fertility. The surface soils are lighter and more sandy than the subsoils, for the obvious reasons that the former contain more or less vegetable matter, and that the constant tendency of rain is to remove the clay from its exceeding fineness, much more rapidly than the sand. You have in almost all cases such a combination of sand and clay as to give you a soil sufficiently light for the cultivation of fine tobacco and corn, while they are at the same time stiff enough for wheat, and retentive of manures, without there being so much clay as to make them puffy, or your subsoils so close as to be impervious to water.

That there are now, and ever have been, material differences in the fertility of the soils in different parts of the county, or different parts of the same plantation, I am free to admit. Differences in the relative proportion of the minerals constituting the rocks from whence these soils were derived, would be one cause of difference, another would be found in position, whether on a hill or in a valley, and another in the different ways in which the soils are exposed to the sun. The valleys receive the waste from the hills, and, other things being equal, the effect is to transfer the very finest and best of the highlands to the plains. But I am not prepared to admit that these causes, or these and various others combined, are sufficient, except in a few favored localities, to produce such differences in fertility as the present condition of the county would seem to indicate, or as most of you, gentlemen, think. Looking at the present productiveness of the soils of different plantations, the odds is greatly against the idea of original equality of fertility, when one field produces a crop of 30 bushels of wheat to the acre and another but 5, without the crop having been injured by joint-worm or chinch-bug, the proposition would seem to be preposterous in the extreme. But when I see

them both underlaid by the very same rocks, and the same character of subsoil; when I find both having the same sort of exposure, and in fact all the conditions pretty nearly the same; and when I find that ten or fifteen years ago both were in the same condition, but that since that time one has been in the hands of a man who has studied his soil and went manfully to work to improve it, while the other is managed by one who still practices the exhausting system practiced by his forefathers, I conclude that the present very great differences in the productiveness of the two soils results from no material difference in them originally, but from radical differences in the modes of cultivation.

The thousands and tens of thousands of acres of old-field pine now standing all over the county, not to mention the thousands that have been cleared up and brought into successful cultivation, attest the fact, that, by the system of cultivation adopted by the early settlers of the county, and continued in too many places up to the present time, its soils have been impoverished to the last extreme; so much so, that it is almost impossible to bring ourselves to believe that they ever were very fertile, or that they can ever again be restored to fertility. Be assured, however, that both propositions are true, and that every one who sets about it understandingly, and with a determination to test the question, must eventually succeed in restoring his soil; and unless he is unnecessarily lavish in the means, he will find that the increased productiveness of his soil, from year to year, will yield him an ample return for the capital and labor expended in the process.

But before discussing the means by which you may, in my estimation, bring up your soils to a proper standard of fertility, let us look for a few moments at the practice by which, in nine cases out of ten, they were brought to their present condition, or one far worse. When a piece of land was cleared it was almost invariably, and for manifold reasons, put in tobacco; the following year it went into corn, from year to year, until so worn out and full of gulls and gullies as to be utterly unfit for profitable cultivation, finally it was turned out to grow up in pines. In the meantime

another tobacco patch, and then another is cleared, each to be in turn treated like the first one, until the whole plantation, with the probable exception of a small portion necessarily reserved for rails and fire wood, is brought into the same condition. Another process equally exhausting, was sometimes resorted to; the plantation was cleared, one field selected as the "*tobacco lot*," to which was applied, from year to year, all the manure, straw, litter, &c., that could be collected from the other portions of the farm, until the whole, excepting perhaps this one field, was brought to a state of utter sterility. During all this time the cultivation was of the most superficial character; some four or five inches only of soil was plowed up, the consequence was, besides a more rapid impoverishment of the land, that in hard rains the wash was very great, and in dry weather the crops suffered severely: No manure ever went upon the land, and no time was given it to clothe itself with anything calculated to restore it partially, or save it from the uninterrupted washing of the winter rains; on the contrary the scouring system went on without interruption.— With such a system in full force is it to be wondered at, that your soils were impoverished and abandoned? that the county should be full of men ready to sell their lands, and none to buy? that the descendants of the original owners of the land should find themselves poor? that they should seek their fortunes in the South and West where the lands are still fresh? and that the spectacle of mouldering and deserted homesteads should present itself so frequently to the eye of the passerby even now? All these evils, and more, are the direct result of this system, and sooner or later must come upon the inhabitants of any country in which such an agricultural practice prevails, no matter what are the inherent qualities of its soils. With the rank growth of tobacco, producing a constant and heavy drain upon the land for both organic and mineral food, and the constant stirring of the soil, necessary to the profitable cultivation of this crop, while the decomposition of the organic matter in the former undergoes rapid decomposition, the vegetable matter originally present is rapidly dissipated, while heavy drafts are also being made upon the inorganic constituents; so that there never being any

return of either made to the soil, sterility necessarily follows, and the land is abandoned. But as soon as it is abandoned a new process commences, the same that I described in speaking of the manner in which virgin soils accumulate vegetable matter.

Weeds and the poorer grasses spring up and partially cover the ground, followed by young pines; and from that time the soil is on the improve. The pine sends down its roots into the subsoil for supplies of inorganic, or mineral food, and its leaves and branches are spread out in the air for its supplies of organic food; and although the removal of the growth after many years standing, would take many thousands of pounds of both organic and inorganic fertilizing matter, yet the annual *top dressing* of leaves, small branches, &c., will have had the effect to increase its productiveness from year to year. Or if I may so express myself, nature's process is, to grow the crop, and yet make such an application of fertilizing matter as to enable the soil to increase its yield in the succeeding one.

The question is often asked why the soil, when turned out, puts up in pines, and not in the original growth of the forest; a simple comparison of the ash of the pine with that of the oak, hickory, or walnut, will explain it; the soil in its impoverished condition is incapable of supplying the inorganic food necessary to the growth of these trees, while the pine requiring little, as is shown by the small quantity of its ash, is sustained without difficulty. If however the growth of pine after long standing, by which the soil is partially, or entirely restored, is removed, and a third growth is allowed to take its place, that will be the same as the original forest growth.

Having said this much in relation to the manner in which your soils were brought to their present condition, we are now prepared to consider the means by which you are to continue the cultivation of those already cleared, or bring into cultivation the many acres now in pines, and at the same time bring them up to a proper standard of fertility. How you are to make the cultivation of the soil bring you in ample returns for the labor expended, and the capital invested, and at the same time make the land go steadily on in increasing productiveness. When we consider by what slow processes the soil was originally

formed, and that in its restoration, we impose the condition that it shall at the same time produce enough to pay a good interest upon the labor and capital employed, we should expect the process to be slow, and slow it is. If, however, a proper system of cultivation is commenced, improvement will certainly commence with it; and if the system is persevered in, a fertility surpassing the original fertility of the land will surely follow; and this I say without reference to particular localities. Whenever and wherever your efforts at improvement take the right direction, you will find the soil responding to the call, whether it be on the rivers, on the creeks, or on the ridge between them.

The system that I would recommend, may be summed up in a few words, the *liberal and judicious use of manures, deep cultivation, and a proper rotation of crops.*

The use of manures when they can be had, is to be recommended under almost all circumstances, but with your soils, which from the process of cropping to which they have been subjected in times past, are so universally deficient in organic or vegetable matter, it would be next to an impossibility to make any valuable, permanent improvement without manure of some sort. If left to themselves this deficiency of organic matter would be gradually made up, in the manner already pointed out; but if put into cultivation, and more especially in the cultivation of tobacco and corn, the organic now present will be rapidly dissipated, unless some means is adopted for making direct applications of animal or vegetable manures, or both, or you imitate nature and grow peas, clover, &c., to be turned into the soil. Such crops are particularly valuable in restoring the land to fertility, and in carrying it to a point even beyond its original productiveness, from the fact, that in their growth they draw by far the largest portion of their organic or their vegetable food from the air, while the roots descending deep into the soil, and even the sub-soil, bring up valuable mineral food; so that when the whole is turned in, the surface soil receives from it very much more of both mineral and vegetable matter than it gave.

The necessity for abundant supplies of organic matter in the soil is two fold; first, all cultivated plants derive their or-

ganic food, that portion of their sustenance which goes to form the true vegetable or combustible portion of the plant, partly from the air and partly from the soil,—and therefore, the soil must be in a condition to supply its portion, by being itself supplied with decaying organic matter. It is a singular fact in connection with this matter, that although the air supplies by far the largest portion of the vegetable food of plants, it is supplied in exact proportion to the capacity of the soil to discharge its proper functions. If the soil is abundantly supplied with organic matter, by which it perfectly performs its part, the air not only responds to the call of the soil but, it is ready, and where the latter is properly managed, does give back to it more than was taken away; but if the soil is deficient in organic matter, the air, although forever hovering over it, and loaded down with organic food, steadily refuses to yield its stores, and vegetation languishes. Second, the organic matter in the soil performs an important part in these changes which are constantly going on in the soil, and by which its elements are brought into a condition such that they may enter the plant, and minister to its wants. I do not design going into any details in relation to the various offices performed by the organic matter of the soil in this connection, but will content myself with referring to a single one. The soil is so constituted, and wisely so, that most of those substances which are necessary to vegetation, are insoluble in pure water, so that so long as they are acted upon by water alone no part of them can enter into the circulation of plants. Water, however, which contains carbonic acid, is a powerful solvent, and is capable of taking up in solution small quantities of the mineral elements of the soil; its capacity in this respect is determined by the quantity of the gas which it contains. Now rain in falling through the air absorbs a small quantity of this gas, and thus a certain solvent power is given to it; but if the soil contains a full supply of vegetable matter, and the air has free access to it, carbonic acid is constantly given off in its decomposition; this being absorbed by the water in the soil, keeps it constantly in a condition to enter into the circulation of plants charged with every necessary mineral element.

The manures that I would recommend

to your special consideration are such as can be produced upon the farm, guano, plaster, and the green crops, such as peas and clover, which if properly managed are as cheap as they are valuable. Every particle of straw, cornstalks, tobacco stalks, barn yard litter, stable manure, and whatever else that can be gotten from the plantation, either vegetable or animal, should be taken back upon the land. I am satisfied from what I have seen, that it is a mistake to keep anything in the way of straw cornstalks, &c., until you have to haul out more water than manure, or until just before you plow your land, for then your teams are wanted for something else, and can illy be spared for such a purpose; the true principle is, to get it upon the land at any time that you most conveniently can, and let it remain there as a top dressing until you put the land in cultivation.

Guano is justly regarded as a manure of very great value; and nowhere does it seem to produce more beneficial effects than in this county. The process by which your soils were brought to their present condition, would suggest the idea, that in their improvement no manure would be more valuable than this, if used properly. The long continued cropping in tobacco and corn, necessarily removes all organic matter, while those mineral substances which are in the soil in the smallest quantity, would also disappear. Now, ammonia, which is essential to all vegetation, is supplied by the organic matter of the soil, so that when the latter disappears the former must be wanting; among the mineral matters the phosphates are generally present in smaller proportion than anything else, and yet, all crops require more or less of them, while the grain crops remove more of them than any other. Guano is a manure composed mainly of these two substances, ammonia and the phosphates, and evidently supplies a special deficiency in your soils. But whilst I would most unhesitatingly recommend the liberal use of guano in connection with other manures and more especially, in connection with the green manures, such as clover, I would also warn you against an exclusive reliance upon it. A moment's reflection will convince any one, that although the effect of the guano may not be confined to the first crop, the continued use of guano, without other means of improvement, such as the

growth of clover, and a rotation of crops, must, sooner or later, prove injurious, rather than beneficial to the land. The increased crops consequent upon the use of the manure, causes the draw upon the land for all the elements composing them, to be much heavier than before, while the continued application of the guano gives back the ammonia and the phosphates only.

I have already said sufficient to demonstrate the great importance of the green crops, as a means of permanently improving land, or as manures, the growth of these, taken in connection with the rotation of crops, is of the utmost consequence. What more I have to say in relation to them I reserve until I come to speak of the rotation.

There are several important considerations which call for deep cultivation, or deep ploughing, in connection with the other means to be resorted to in the improvement of your lands. 1st. The surface soils are, for various reasons, much lighter, generally, than the subsoils, or the soil which is to be found between the bottom of an ordinary five or six inch furrow, and a depth of ten or twelve inches. By turning this up and mixing it, as you do in cultivation, with the lighter soil, you generally improve its mechanical condition and color, and its power of retaining manures is materially increased. 2d. In deepening the soil in every case we increase the capacity of the land, for as the roots penetrate farther we give our crops a much larger quantity of material to draw from; but in your soils which have been impoverished on the surface only, and whose sub-soil still contain so much that is valuable, common sense would point to deep ploughing as an all important aid to improvement. 3d. By deep ploughing the capacity of the land to receive and retain moisture is very much increased; the deeper the soil is, the longer will the rain fall upon it before it begins to run off, or the land to wash, and when the dry weather comes, the deep ploughed land, for the reason that it contains the most moisture, and that the roots may penetrate further, resists the drought the best.

The necessity of a judicious rotation of crops in every case where permanent improvement is desired, is so generally conceded, that I need scarcely consume much

time in urging its claims upon you. It is sufficient to say, that sound theory, and the best practice of the most enlightened agriculturists everywhere alike demonstrate its necessity. By a rotation the land may be constantly covered; the draw upon the soil for the different mineral elements which are necessary to vegetation will be more nearly equalized; the manuring and cultivation necessary to the successful cultivation of one crop is oftentimes, and I may say, is generally the very best preparation for a different one, and which may profitably succeed it; and what is of equal importance, we are enabled to cultivate these ameliorative crops, such as clover, which, by the time the rotation is completed, have returned to the soil a large part of what has been taken away in the other crops.

The rotation must, of course, be determined in a very great degree by the crops which are most profitable, and best adapted to the soil. Your round of crops consist of tobacco, wheat, corn, oats and peas; in the adoption of a rotation, two systems present themselves, the three fields and the five field systems.

If you adopt the first, you have corn and tobacco the first year; you all know that the tobacco lot must have a heavy covering of straw, stable manure and guano, and that the corn will respond to almost any application that may be made to it. These crops leave the land in the best possible condition for wheat and clover; while the manure which was applied to one or both, not having been exhausted in these crops, will make the wheat crop, followed by a good stand of clover, more certain. A judicious use of guano on the wheat crop is to be recommended although there, undoubtedly, are many fields in the county, that will, after a heavy manuring for tobacco, bring fine crops of wheat and clover without anything more.

This system, however, cannot, in the nature of things, be so improving as the five field rotation, in which we have two green crops, and three other crops, in five years. The rotation is as follows: 1st, corn and tobacco, to be treated as before; 2d, wheat; 3d, clover; 4th, the clover fallowed for wheat, or wheat and oats; and 5th, clover.

If now, in carrying out this system, the tobacco ground, instead of being taken from the best of the field, is made to occu-

py different parts of it at different times, so that, in process of time, the whole plantation will have been in tobacco, and the system of manuring highly for this crop is carried out, I can see no reasonable limit to the improvement of your soils. The peculiar adaptation of the soils of the county to the growth of tobacco, and the price which it brings in the market, point at once to its extensive cultivation. Moreover, its cultivation is the very best means of keeping down those pests which interfere so materially with the cultivation of the other crops; and its nature being entirely different from the other crops, it becomes a valuable crop in a rotation. These facts, coupled with the fact that, of the heavy dose of manure necessary to the tobacco, and which is much more than paid for in that crop, a large part is still in the soil, ready to aid a succeeding crop, point to this crop as a means of affording you powerful aid in the onward march of improvement, instead of its being, as it certainly has been in time past, and under a different system, the most fruitful of impoverishment.

But I do not wish to be understood as recommending any new and untried system of improvement for your lands, based upon the theoretical views that my visit here have given rise to; on the contrary, I wish to proclaim to all, that what I am now urging upon you, has been successfully put in practice in various parts of the county, and with very great success. Numbers of gentlemen, in different parts of it, have discovered that *their* soils, when treated in the way recommended above, improve, and some of them rapidly, and the impression is becoming general, that some worn out plantations are, after all, very good land. Now, what each particular farmer has seen in regard to his own soil, I think I see for the whole county, and I firmly believe that there is scarcely a single farm within your borders, that cannot be made, if managed as the gentlemen above referred to, have managed theirs, as productive as the best high lands of the county now are.

I take the liberty, in this connection, of mentioning a few facts that have come to my knowledge during my stay in the county, facts which demonstrate, beyond all question, the general capacity of its soils for improvement. About 12 years ago, a gentleman owning a worn-out farm

determined that he would test the question as to whether it could be improved; his land, or at least the portion I refer to, then brought him five bushels of wheat to the acre, on a fallow. Deep ploughing, the use of manures, and a rotation were commenced, and have been persevered in up to the present time. The land commenced to improve immediately, and has gone on uninterruptedly up to the present time.—This year it yielded a crop of 30 bushels of wheat to the acre, or six times the yield 12 years ago, and it has on it now a beautiful stand of young clover. The gentleman who has effected this assures me that the soil has invariably more than paid for the cost of manure, labor, &c., in the increased crop. Adjoining this farm is one which is at this time almost run down, but which must have been originally just such land; the marks of their original equality are unmistakeable, and yet, to see the difference in their present capacities, we should feel disposed to regard the thing as an impossibility.

Another gentleman gave me the history of a field which this year brought from 25 to 30 bushels of wheat to the acre. In 1842, when he commenced to improve it, the most that could be gotten from it was $2\frac{1}{2}$ barrels of corn and five bushels of wheat. A rail fence divides this plantation from one that will not now produce more than $2\frac{1}{2}$ barrels of corn or 5 bushels of wheat, and yet the soils were once the same. In another part of the county I saw a beautiful crop of wheat on a piece of land that two or three years ago was in old-field pines, and at one end of it the pines are still standing, giving that portion of the field as uninviting a look as any that I would wish to see. The first crop on this land, after the removal of the pines and a heavy manuring, was tobacco; the second was the wheat I saw, without any manure. Another field had been in the possession of the present owner for 30 years, and in all that time he had never cultivated it, because he considered it too poor for cultivation; he cleared off the pines at last, however, manured it well, got a crop of tobacco, a crop of wheat without any more manure, and a stand of clover. I cannot speak of my own knowledge with regard to the tobacco or wheat, but I can say in regard to the clover, that I have never seen finer on the best lands

of the Valley. I might present you with numerous other examples, but I forbear detaining you longer with the recital of such details. I have seen that in every part of the county, when an honest effort, based upon correct principles, has been made, the land has shown a capacity for improvement, and as rapid improvement as generally takes place in any soils that have been run down by long and improvident cultivation; it is not, therefore, surprising that I should believe implicitly that all will be found equally improveable, or that I should urge you to the adoption of a system of improvement which has proved so successful hitherto.

In conclusion, let me remind you, gentlemen, that Powhatan is but a small portion of the Old Dominion; that there are thousands of acres in every county which want improvement as much as yours do; that Virginia must ever be an agricultural State; that although still morally and intellectually the first in the Union, it cannot be denied that she has fallen behind some of her sister States in physical advancement; that to prosper with them her abandoned and impoverished acres must be reclaimed, and her sons must cease to desert her; and that if we would be true to ourselves and to her, we must each and every one of us strive to restore our soils to their original fertility.

I would do violence to my feelings did I fail to express my thanks for the many acts of courtesy, kindness and hospitality which I have received at your hands during my brief sojourn among you; or to say that I would gladly serve you in my poor way, if it were only to show you that I appreciate hem.

VINEGAR.—The juice of one bushel of sugar-beets, is worth twenty-five cents, and which any farmer can raise with little cost, will make from 5 to 6 gallons of vinegar, equal to the best elder wine. First wash and grate the beets, and express the juice in a cheese press, or in any other way which a little ingenuity can suggest, and put the liquor into a barrel, cover the bung with gauze and set it in the sun, and in fifteen or twenty days it will be fit for use. By this method the very best of vinegar may be obtained without any great trouble, and I hope all who like good vinegar will try it.

Forticulatural Department.

E. G. EGGLING, Contributer.

The Rose.

ITS ADMITTED SUPERIORITY—WHENCE OBTAINED—THE PROCESS BY WHICH NEW VARIETIES ARE ORIGINATED—CLASSIFICATION OF ROSES, with types of each class—REQUISITES OF A GOOD ROSE—A LIST OF SUCH RECOMMENDED—The soil best suited to the culture of roses. How the ground should be prepared. Of Planting. Cultivation. Pruning. How roses are propagated. Cuttings, Layers, Budding, Root-Grafting and Root-Cuttings, &c., &c.

THE ROSE, by universal consent the Queen of the flowers, the emblem of beauty and the pride of the garden, has been in all ages and almost among all peoples, an universal favourite; and poets of all times and tongues have made it the theme of their lays. It was well known among the ancients, by whom it was esteemed as an emblem of silence, whence the saying, *sub rosa*, as applied to confidential communications; and it was adopted as the emblem of silence, because the first rose ever seen was given by the God of Love to Harpocrates, the God of Silence, to engage him not to divulge the amours of Venus. It has been made the symbol of various and opposite sentiments at different periods. Piety decorated the temple of religion with roses; love expressed its tenderness in wreaths of roses; mirth revelled adorned with a crown of roses; grief strewed its blooms upon the grave, and luxury spread its leaves for a fragrant couch. Many are the stories of its birth, told in prose and verse, of which the following, concerning the moss rose, by a German poet, may serve as a specimen:

The Angel of the flowers one day
Beneath a rose-tree sleeping lay,
That spirit to whose charge is given
To bathe young buds in dews of heaven.
Awaking from his light repose
The Angel whispered to the rose—
“O! fondest object of my care
Still fairest found where all is fair,
For the sweet shade thou giv’st to me,
Ask what thou wilt ‘tis granted thee.”
Then said the rose with deepened glow—
“On me another grace bestow.”
The spirit paused in silent thought,—
What grace was there that flower had not?

’Twas but a moment,—o’er the rose
A veil of moss the Angel throws:
And robed in Nature’s simplest weed
Can there a flower that rose exceed?

The rose richly deserves the high estimation in which it has always been held, for certainly there is no flower which in all respects challenges so fully the admiration of every lover of the beautiful. Considered in respect of form, colour and fragrance, the three qualities by which every flower is to be judged, and the rose stands like Saul, towering above all its fellows.

A very few varieties of the rose are indigenous to this country, the sweet briar and prairie rose being examples; but the large majority of our roses have been introduced into this country from France, Belgium and England. Lafay and Vibert, in France, and Rivers, in England, originated the most of our fine roses; and quite recently, a few roses have been produced in the United States. While, however, the most of our fine roses have been introduced from abroad, there is no soil, or climate, in the world, better adapted to the cultivation of this flower than that of Virginia. For years past, we have been accustomed to send plants to New York, Philadelphia and Baltimore, and the florists there have always regarded the year’s product with unconcealable wonder and delight. The plant, in one season here, will grow nearly double as much as it will in New York. Nearly every variety, even the choicest, can be cultivated here in the open grounds, and they stand our winters well, except when they are unusually severe, as the last two have been. There is no reason why we should not here originate fine new varieties, except that we live too fast in this country to take time for the experiment. In order that any of our readers who may feel inclined, may try to originate new varieties, we will describe the process by which they are obtained.

Select one of the finest, ever blooming varieties in your garden, with which to make the experiment, and from that gather in the Fall of the year, when they ripen, the seeds contained in what is popularly known as the rose-apple. This apple is not to be gathered until it is quite ripe, which is never until it loses all its green colour; and then it is to be buried in a pot of sand, until about the last of the next ensuing February, when the apple is to be

opened and the seeds planted in boxes, about six inches deep, filled with light, mellow, woods earth, and the seeds to be put about half an inch below the surface. Place the box then in a hot bed, and keep the soil in the boxes constantly moist with water until the seeds germinate and the young plants appear. At this early stage of their growth, the young plants ought to be guarded from exposure to the hot rays of the sun, as they are now very tender. The plants may remain in the boxes until the ensuing summer, when they are to be planted in the open ground and allowed to stand until they come to flower. It may chance then, that out of a thousand plants, one worth preserving and propogating may be obtained, and it may equally as well happen that of ten thousand plants, not one will exhibit characteristics to entitle it to regard. This uncertainty of result, is the true reason why so few private persons have attempted the experiment, which is likely to fail in a thousand trials, while the next may reward the labours of the cultivator with a flower of surpassing beauty. That such experiments have succeeded, witness the Cloth of Gold, a seedling of the La Marque, which was thus obtained, and which deservedly ranks high in public estimation.

By this process the varieties of the rose have been greatly increased, until they have become almost innumerable, there being known to us some fifteen or sixteen hundred varieties of the plants. They have been classed into distinct families, but even that mode of classification has become difficult, owing to the production of new seedlings, which would not come strictly within the description of any one family, but partake, in a measure, of the characteristics of several. Such an instance we have in Giant des Battaillas, which is classed with Remontant roses, while it partakes largely of the character of the Bourbon.

First we would give as the most general classification, Annuals and Perennials, of which the old Burgundy, and the old mosses, are specimens of the first, and the whole family of teas specimens of the latter.

Among the Annuals there are four or five families, which, with the exception of the mosses, have gone out of cultivation of late years. They are the old garden roses, Ayrshire, Prairie Rose, the Mosses, etc., etc.

The Perennials consist of some nine fami-

lies, known by the titles respectively of Remontant, Hybrid Perpetual, Tea, Bourbon, Bengal or Chinese, Musk, Noisette, Burr or Mycophylla and Lawrencia, which are again sub-divided into three classes, dwarfs, pillar and running roses. As types of the Remontant roses, we may mention La Reine, and Prince Albert; and all of this class are very fragrant, very hardy, standing our severest winters; bloom very profusely early in the Spring, have a few scattering flowers through the Summer, and are in full bloom again in the Fall. They are robust and strong growers, and all these qualities make this a most desirable family. As types of the Hybrid Perpetual, we mention Julia Krudner, and Prudence Roeser, but few of this class are in cultivation, because they are shy bloomers. As types of the Rosa Odorata, or Tea rose, we mention Triomphe du Luxembourg, and Devonensis, or as popularly called in Virginia, Laurel rose. These roses are very profuse bloomers, and are, in every respect, most desirable, and until within a few years past have stood our climate well; for the last two winters, however, they have been killed wherever they were entirely unprotected. A few pine bushes placed around them, will afford sufficient protection from the cold of our severest winters. As types of the Bourbon, we mention, Hermosa, and Queen of the Bourbons. This group of roses is one of the finest of all the families of the queen of the garden. They bear flowers in immense clusters from May to November—may in truth be said to be blooming always. While, however, they are prized for their blooming qualities, some of them are deficient in fragrance, and, therefore, less esteemed than others. They are perfectly hardy in this latitude. As types of the Bengal or Chinese class, we mention Agrippina, and Bougere. Perhaps no rose has been more universally cultivated and distributed than this; the most of the class are fragrant, and all of them profuse bloomers. As types of the Musk rose, which includes but few varieties, we mention Old White Musk Clustre and Princess of Nassau. Few as are the varieties, they are very universally known; and under good cultivation they will produce bunches of flowers by hundreds. They derive their name from their peculiar odour, which enables the least experienced to detect them. As types of the

Noisette family, we mention Aimee Vibert and Solfatare. This class originated in Charleston, S. C., about 1815, under the skilful management of Mr. Noisette, a Frenchman, whose name they bear. The varieties of this class usually bloom in clusters of five or six flowers, and include as well plants which grow from six to eight inches in a season, and those which grow from eight to ten feet in the same space of time. We have at our porch a Cloth of Gold, which rose belongs to this class, which has already made a straight shoot from the root this season, which is now eight feet high and half an inch thick, and it will doubtless grow several feet more before the end of the season. Some varieties are very hardy and others quite tender. Of the hardy varieties, we mention Aimee Vibert, Fellenberg and La Biche; and of the other, La Marque, Cloth of Gold and Solfatare. These last named have always stood our winters until the last two, which it will be remembered were unusually severe, and they are doubtless hardy enough to bear our ordinary winters. As types of the Burr or Mycrophylla rose, we mention, Mycrophylla Rubra, or dark red, and Mycrophylla Odorata, Alba. This class comprises but four varieties, the other two being Mycrophylla Violuce, and Maria Leonida. They are of Chinese origin; they bloom very prettily, in clusters, on second year's wood, on the small side branches. The Laurencia group, includes but few varieties, of which only one, the Laurencia Flora, pleno, is much cultivated in Virginia, and that is sometimes called Picayune. The flowers are very small, and very numerous. This class is of Chinese origin, and by some florists is classed with the Rosa Indica, or Bengal family; but we do not think that a proper classification, and hence we have accounted it an independent group.

This summary includes all the perpetual roses, except, perhaps, one or two varieties of the Moss Rose, which give promise of being perpetual. There is a well-known moss rose, which has always borne the name of white perpetual, a title it by no means deserves, as it has never, that we know, bloomed more than once; and persons who judge its character by its name are likely to be deceived. Besides which, it has no quality beyond its colour to recommend it, as the flower is generally im-

perfect and ragged. A moss rose, a crimson, called General Drouout, has bloomed twice in our grounds this season; and we saw some moss roses in Philadelphia, in June, which were forming buds a second time this season; and we were informed by Mr. Buist, that they bloomed like the Remontant. We procured specimens and shall test their quality, and advise our readers of the result.

Every year new varieties of the rose are introduced into this country, but for the most part they do not deserve cultivation. The list of fine roses is already so large, and the specimens of each class so superior, that it is not easy to add to the catalogue others equal to those which we already have; and we should never choose an inferior rose because it was new, to the neglect of an older but superior variety. A good rose, in our judgment, should possess these qualities: be hardy, a strong grower, profuse bloomer, bear flowers of fine shape, colour and fragrance. Such a rose is Giant des Battailles, which possesses all these qualities in as high degree as any with which we are acquainted. There may be roses, and undoubtedly are such, which possess only a part of these characteristics, and which may well suit those who have green houses in which they may be kept through the winter. Such, for instance, are Lutea, or Yellow Tea, and Madame Des Prez. These are very choice varieties, but they lack the quality of hardiness, and cannot, therefore, be cultivated in the open grounds, which is, in our opinion, a fatal objection to them, and to all similar roses.

The number of roses which measures up to our standard, is large enough to puzzle any person in making a selection, who is not very familiar with the several varieties of each class; and, for the benefit of such individuals, we propose to make a list of roses, which we can safely recommend to Virginia cultivators. Of the Bengal, or Chinese, we would choose, AGRIPPINA, a brilliant crimson; CELS, a blush; ALBA, a large white daily; and LADY WARREN-DEER, a large white rose.

Among the teas, ADAM, a large delicate pink; ARCH DUCHESS ISABELLE, pure white; CAROLINE, bright rosy pink; CLARA SYLVAIN, pure white; DEVONIENSIS, large creamy yellow,—very fragrant; FLAVESCENS, old yellow tea; LA SYLPHIDE, large rosy buff; LYONNAT,

large bright rose; PRINCESS MARIA, rosy pink; SAFRANO, buff yellow; STROMBIO, white pink; and TRIUMPH DE LUXEMBOURG, a large purplish rose.

Among the Noisette roses, Aimee Vibert, pure white; Chromatella, or Cloth of Gold; Fellenburg, brilliant red; Jaune Desprez, rosy buff; La Pactole, pale yellow; Ophire, yellow,—tinged with red; and Solfatare, large yellow.

Among the Bourbons, Acidalie, rose white; Angelina, bright rose; Bossuet, dark carmine; Duc De Chartres, rosy pink; Dupetit Thouars, dark crimson; Souvenir De Malmaison, pink; Henry Clay, large carmine; Hermosa, pale rose; Leveson Gower, very large purplish rose; Monthly Cabbage, deep rose; Mrs. Bosanquet, waxy blush; and Queen of the Bourbons, fawn coloured.

Among the Remontant, Barron Prevost, very large, bright rose; Countesse Duchatel, brilliant rosy carmine; La Reine, large rose; Giant des Battailles, scarlet crimson; Léon des Combats, bright scarlet; Madame Laffays, dark rosy crimson; Prince Albert, crimson; Rivers, large crimson; Reine, de La Guillotierre, violet crimson; Youlande D'Arragon, rosy blush; Marguerite D'Anjou, pale rose; Queen Victoria, or White La Reine, very large blush white; and Sydonia, bright pink.

Among the Hybrid Perpetuals, Julia Krudner, slight blush; and Prudence Roesier, scarlet.

Among the Musk, White Musk Cluster, and Princess of Nassau.

Among the Mycrophylla, the specimens before mentioned as types of the class.

This list of fifty three roses cannot be surpassed, and those who wish a large variety, cannot do better than to purchase these. By far the larger number of persons, however, are content to have a smaller collection of roses; and for the convenience of such, we will give a dozen of the choicest varieties, i. e. —Agrippina, Clara Sylvain, La Sylphide, Safrano, La Pactole, Hermosa, Souvenir de Malmaison, Bourbon Queen, White Daily, Barron Prevost, Giant des Battailles, and Léon des Combats.

The best climbing roses, are, La Marque, Solfatare, Cloth of Gold, Ophir, White Mycrophylla, and Labrador.

The soil best adapted to the culture of the rose, is a deep rich, sandy loam; but no soil is actually unsuitable, which is rich enough, except perhaps a low, wet, marshy soil. It may be remarked, however, that, in general, no soil is rich enough for the rose,—the very best requiring to be manured, in order to produce them in the highest perfection. Nor is any new, green manure, stable, or other, proper to be used; but it should be six or twelve months old, and thoroughly decomposed. Old, well-rotted, stable manure is better than any other; pounded charcoal, and bone dust are also good; and where the soil is stiff clay, sand may be advantageously worked into it. By the use of these, and similar appliances, any soil may be made to grow the rose well—bearing in mind always, that, do your utmost, and you cannot make the ground too rich.

The successful culture of the rose depends, in a large measure, upon the manner in which ground is gotten ready for the planting. It is much the habit in this State, to dig a hole in a hard piece of ground, and stick a rose there, just as if it was thought the plant could thrive without the facilities for drinking in moisture from the soil. It were as rational to plant it in a cast-iron pot, and expect it to flourish. Supposing that the land has been sufficiently enriched, the next step is to break it from fifteen to eighteen inches deep with a spade, taking pains that the soil is thrown from the spade to crush all the clods, so as to make the land as light and friable as possible. Where the roses are to be planted in the midst of a grass plat, or other hard spot, always break up and enrich with manure a space of three or four feet around the plant, or it will not do much. We cannot lay too much stress on these points, nor can our readers give them over-much attention.

In considering the planting of roses, we have first to speak of the proper season. For Mosses, Hybrid Perpetual, and Remontant roses, the fall is the best season, say between the first and fifteenth of November. The tea, Bourbon and Bengal, or Chinese roses, should be planted in the spring, say between the twentieth of March and first of April. Those which are planted in the fall, are usually merely removed from one part of the grounds

to another, while those planted in spring, are planted from pots. Whether one kind or another is planted, and whether at one or the other season, it is to be noted, that *roses will not thrive if planted in a shady situation*. If put in such situations, they grow spindling, produce leaves luxuriantly, while the crop of flowers is small, and of a very inferior quality. Roses need to be where they will freely receive the dews of heaven, and the genial rays of the sun, or they will but poorly develope their beauties.

Trees are usually planted just so deep as they stood in the nursery, but roses should be planted from four to six inches deeper, for several reasons. One is, that all the wood thus buried will form roots, and so add to the vigour of the plant, as well as the strength of the shoots which came up from the roots. And another advantage, is in the fact, that where this is done, should the rose be injured by the frosts of winter, which occasionally happens with the Teas and Balsams, and even should the entire top be killed, shoots will put up from the roots, and so form another plant.

The best way to plant roses, is to plant them in clumps,—each distinct family to itself, as all the members of a family grow nearly of a size, and thus are not likely to overtop each other. Where this cannot be done, and where the roses are put upon a border, in a straight line, put the Remontant, which are the stronger, on the back row, then next, those which are nearest them in height,—and so on down to the dwarfs. If planted in a circle, plant the strongest growers in the middle, and graduate them as before, placing the dwarfs on the outer edge of the circle. Where the grounds are extensive, plant in each cluster roses of one colour; here a cluster of white roses, there a cluster of scarlet, there a cluster of yellow, then a cluster of blush, &c., &c. Some persons prefer mixed colours, but we are decidedly of opinion, that the other is preferable, and so we think all our readers would agree, if they had seen with us a bed of *Giant des Battailles*, or a bed of *White Chinese*, than which nothing could be more strikingly beautiful.

Concerning the distance to be observed in planting roses, we have to observe, that

the Remontant, Hybrid Perpetuals, and the stronger growers among the Bourbons, may be put three feet apart, and all others two feet apart. But it is to be observed that these directions are given with the understanding, that the ground is to be devoted solely to roses—and where these directions are followed, and judicious culture and pruning presisted in, but a few years will elapse, before the earth will be entirely covered, with a mass of foliage and flowers.

When the rose is first planted, it is of course small, and it is desirable to force its growth, at least for the weaker and smaller varieties, which may be done by simply removing all the buds as they appear, for one season. This throws all the vigour of the plant into the formation of wood,—much of which would otherwise be consumed in the formation of the flower,—and will vastly enhance its growth. In the removal of these buds, a sharp instrument, as a pair of scissors, or a sharp knife, should be used.

It is a very common practice, which one sees every fall in Virginia, to heap manure round about the rose bushes, where it lies all the winter, and until the ensuing spring, when it is removed, and the ground worked up. A more erroneous and hurtful proceeding could hardly be indulged. The effect of it, is to keep the plant through the winter heated to an unnatural and hurtful degree and when the earth is stirred in the spring, the plant is checked and chilled, and so presently it grows sickly, and becomes infested with little green lice, and other insects, which mar its beauty, and injure it seriously. A better way to treat roses, is that which all good cultivators pursue, which is simply, where anything is done, to place a covering of dry oak leaves about the roots, to protect them from the frosts, and for the tenderer varieties, to stand around them a few pine or cedar bushes,—sharpening the ends, and sticking them firmly into the soil. This is not done, however, until the flowers and leaves are killed by the earlier frosts.

In working the ground about the rose bushes, we usually delay it until about the middle of April, until all fear of frost is gone. Where the ground is stirred earlier in the season than this, the roses are liable to suffer from late frosts, which strike through

the loosened soil, and attack the roots. When the proper period then arrives, spread on the surface good old manure, to a depth of two or three inches, and then work it into the soil with an asparagus fork,—and then *keep them free from weeds at all times*, which will be a sufficient cultivation, except that part of the cultivation which is included in the term pruning.

The pruning required by roses, is different for the two classes of dwarfs and running roses, each of which processes we will endeavour to describe. And first, of the pruning required by dwarfs.

The precise object of this pruning, is to excite growth, and promote the production and improvement of the bloom. Hence, in pruning, the first rule to be observed, *is to remove all that part of the wood which if allowed to remain would yield only leaves*. That includes, in roses of this class, all wood which is more than one year old. The flowers are produced only on the wood of the previous year's growth. But even this should be pruned, so as to leave from two to six eyes on each shoot according as the shoot is weaker or stronger.

In regard to the pruning of running roses, proceed somewhat differently. Cut off all the wood two years old; and remove all the weaker shoots one year old; but leave the stronger shoots of last year's growth untouched. In tying these to a frame, wall, &c., they should be spread out in fan-shape when possible, like grape vines, and not be tied two or more shoots together, as is often done.

No particular date can be specified for this pruning, except that it should not be done earlier than the first of April, the general rule being, *prune your roses when the buds begin to swell*. This rule, however, is not without exceptions. Sometimes the buds begin to swell as early as February, and when this happens, the roses should not be pruned,—because, if they are, and a frost comes thereafter, it puts them back.

There are five methods by which roses are propagated,—by cuttings, or, as sometimes termed, slips, by layers, by budding, by root-grafting, and by root-cuttings.

To propagate by cuttings, about the first of

September, take a small tender branch, from which the flowers have just dropped, and cut off a piece five or six inches long. It must be severed just below the eye, where the leaves are attached to the stem, and cut square with a very sharp knife. A piece of this size will have five or six leaves on it, all of which are to be removed, except the two upper ones. Then take a box, four or six inches deep, and fill it with a compost, half clean sharp sand, such as is found in the bed of streams, and half fine-sifted woods earth, mixed thoroughly together. After the compost is filled in, it should be beaten or pounded until it is firm and solid. Then make a hole in the earth, put in the cutting, about which the earth is to be firmly packed, burying the cutting about three inches, after which cover it with a glass jar, tumbler, or bell-glass, and keep it well moistened with water, and keep the box at all times in a shady place, where the sun cannot reach it. In the course of six weeks, or two months, they will strike root freely, if at all; and they are to be kept in this box under cover, until the following spring. The box should be kept in a green-house, pot or frame,—or some sheltered locality, where the ground does not freeze. In the spring they may be transferred to the open ground, by taking them up carefully with all their roots, and so much of the soil as may adhere to the roots. This mode answers well with Tea, Bourbon, and Chinese roses.

The next mode,—that by layers,—is suitable for any kind of roses, and is the simplest method of all. Take a branch, or shoot, not less than twelve inches long, and strip off all the leaves except four or five at the top of the shoot. About midway the shoot, and immediately below the bud, where the leaves joined the shoot, make a cut into the shoot with a knife, about half way through, then slide the knife upward, splitting the wood through the middle an inch and a half or two inches, above the cut first made. Withdraw the knife, bend the shoot down until the part where this incision was made touches the earth. Just there remove the earth to a depth of three or four inches, and place in the hole thus made the part of the shoot which was cut,—and, to keep it in place, fasten it in that position with a wooden hook or fork, then cover with earth, and leave it until

the ensuing spring. Roots will grow out from the cut, and the next spring, remove the earth, and sever from the old plant, making your cut just below the point at which the roots formed, and plant it out,—which should be done very early in the season.

The process of propagation from root cuttings is applicable only to Moss roses, and the old common annual roses, such as Burgundy. In the fall of the year, go to any strong, healthy plants, and remove the earth from about them, and cut off a portion of the roots with a sharp knife,—being careful, however, not to remove so much of the roots as to injure the plant. Tie them in a bundle and bury them. Early in the spring of the year, take these roots and divide them into pieces, four to six inches long; having first prepared a drill, deep and rich, to receive them. Bury the root cutting about four inches, and keep the earth on the top of the drill fine and soft, so that the young shoots, which are very tender, may easily make their way through the soil to the surface. The shoots will put up sometime in April or May. This is the only way that the Yellow Harrisonia can be successfully propagated.

Any kind of rose may be propagated by budding—a process simple enough in performance, but exceedingly difficult to describe, without the aid of explanatory plates, a remark indeed applicable to every such description which may be attempted. The operation must be performed while the shoot, in which the bud is to be placed, is green and growing,—that is, while the sap is up, so that the bark will part easily from the stem; as the whole operation consists in putting the bud of a fine rose under the bark of some common hardy variety, when the juices of the plant close up the wound, and the bud grows off and forms the future plant.

The operation is thus performed: Select a thrifty, growing shoot of any common rose, and with a very sharp knife make a cut across the shoot, cutting through the bark and no deeper. Then split the bark open with a downward cut of the knife, say to the distance of an inch or a little more, and with the point of the knife, loosen the bark from the wood, so as to make an opening for the bud. Then take the branch from which the bud is to be

selected, and beginning about half an inch below the bud, and on the other side of the branch, cut into the wood, pass the knife on through the wood behind the bud, bringing it out half an inch above the bud. This will give you the bud attached to a thin piece of the rose branch. Then, with a very sharp knife, shave away this wood behind the bud until it is gotten very thin, when it is all prepared to be inserted in the opening in the bark of the shoot on which you propose to bud. Now take the bud and, beginning at the top of the opening in the bark, carefully slip it home under the bark of the shoot, which will completely cover and hide the woody part of the bud, and leave only the bud itself exposed. Wrap around the place cotton twine, or other suitable string, to keep the bark together, and the operation is complete,—only care must be had not to put the twine upon the bud itself, which should be left exposed. In three or four weeks, the string ought to be removed. The bud lies dormant, or nearly so, during the winter, but grows off vigorously with the advent of spring; and then the old stock is to be cut off just above the bud, and whatever shoots or branches show themselves below the bud, should be carefully removed, so as to throw all the vigour of the plant into the growth of the bud, which will form the future plant. As before intimated, roses may be thus budded at any time while they are green and growing,—but it is usually done late in the summer, or early in the fall. The best time to bud is immediately after a rain; but it may be done even in dry weather, if, so soon as the budding is completed, water is given to the plant freely, so as to start the bud at once. Thus it is that we take a bud from a fine rose, put it on a common stock, and convert the worthless stock into a choice and valuable variety.

The process of root-grafting, which is another method by which roses are propagated, is even more difficult to describe, though equally simple in practice. In the fall of the year, after the plants have stopped growing, select the roots on which you wish to graft, tie them in a bundle, and bury them until the ensuing spring. In February or March following is the time for making the grafts. Cut the roots into pieces three or four inches long;

and it must be observed, that to succeed, you must have roots which are well supplied with fibrous roots. A naked piece of the root without fibers will not answer. A piece of the branch of the rose which you wish to propagate, must be taken about three inches long, which has a bud on it, and as nearly the size of the root on which it is to be grafted as you can get it. Then, with a sharp knife, cut one end of the root to the shape of a wedge, making the cut smooth and even, and about three quarters of an inch long; and prepare the piece of rose wood, which is to be grafted on the root in the same manner, so that the two will fit closely together. Then about midway the wedge-shaped cut on both pieces, make a slit with the knife, so that the two may be joined together, and then carefully unite them at the point where the slit was made,—and if it be properly done, they will hold together, because the one is fastened into the other. But the most material point is, to put the pieces together, so that the bark of the root, and the bark of the wood on one side, shall be even, or, as a carpenter would express it, flush. If this is neglected, the pieces will not unite, and on this the whole success of the operation depends. Then wrap cotton twine closely around the graft, and plant as you would another rose,—taking care, however, to bury the entire graft below the surface, leaving say two inches of the wood above ground. When it is desirable to perform the operation very nicely, the graft may be covered with wax to exclude dampness.

We had thought to conclude this article with an account of the method by which rose-water and attar of roses is obtained from rose leaves, but we are warned by the space already consumed, that it is time to bring these suggestions to a close. It may even seem to some that we have chosen the wrong season for this article; but we have been induced to write about the rose now rather than another time, because many of the finer roses are now in bloom, and our descriptions can therefore be verified by personal inspection, and because the season is just opening which is best for planting several of the finer roses. Time was, when the better roses sold at prices which put them beyond the reach of all, save the rich; that is no longer the fact,—the highest price

charged for a rose now being only fifty cents. In 1844, we sold in this city, at auction, at Davenport, Allen & Co.'s warehouse, the Prince Albert rose, for five dollars the plant; whereas the same rose can now be purchased for thirty-seven cents. Thus are the fairest gifts of Flora brought within the reach of the humblest cottager, and no person need deny himself or herself the pleasure of cultivating a choice collection of roses. Their beauty of form and colour, and the exquisite fragrance which they fling upon the passing winds, will amply repay the outlay of their purchase, and all the toil of their cultivation. They give grace and beauty to the homesteads of the land, and as one of our truest English poets has expressed it, point our thoughts heavenward, and stand about us ever,

“Emblems of our own blest resurrection—
Tokens of the bright and better land.”

Cabbage and Lettuce for Spring.

About the fifteenth of this month is the proper time to sow cabbage seed, to make early Spring cabbage. If sown then, the plants will be large enough for transplantation about the first of November. In planting these they are to be put deeper, than is usual, with plants which are set out in the Spring of the year.—The bud should be buried about an inch below the surface, and the soil in which it is planted should be as rich as it is possible to have it.—The proper kinds are Early York, Large York, Ox Heart and Flat Dutch.

It will be observed that the cabbages thus planted, if they survive the winter, come much earlier in the Spring than if they would if not planted now. These will mature at least a month earlier, than such as are planted in the Spring, either in the open ground or in a hot bed. The object in burying the bud is to protect it from cold, so that even should the outer leaves be killed by the winter's frosts, the plant will still develope from the bud thus protected from the cold. All persons who want very early cabbage should pursue this plan.

This is also the proper time to sow lettuce seed for the Spring crop. Either the Brown Dutch or Royal Cabbage may be sown. They should be planted out about the same time as directed for cabbage, in a sheltered border which is very rich, and should be placed about twelve inches apart every way.

Kale and Turnips for Salad.

This is the proper season to sow kale and turnips for winter salad. They should be sown broad cast, and if the weather becomes very severe, they should be covered with pine branches or something of the sort to protect them. A few Spinach seed may be sown with these others, and will do well.

A Problem for Farmers to Solve.

A gentleman in my immediate vicinity last year, planted a portion of his land in peas, which was cultivated in the usual mode; immediately adjoining, above and below, he had a luxuriant pea-fallow. At seeding wheat time the cultivated pea vines were drawn up and removed from the land, and the peas on the fallow turned under, the thin portions of land had equal quantities of guano applied, and wheat sown thereon. On the 23d of May last, I was invited to inspect the wheat sown, and to my unbounded astonishment, found that on the cultivated pea-lot standing three feet in height, whilst that immediately adjoining on the pea-fallow only eighteen inches—to-day (the 20th of June) it is reaped, and it is the opinion of the owner, as well as myself, that the cultivated lot will yield twice the amount of the fallow lots.

RICHARD ROUZEE.

ESSEX COUNTY, Va., June 29th, 1857.

[American Farmer.

FIFTH ANNUAL EXHIBITION

OF THE

Virginia State Agricultural Society.**OFFICERS FOR 1857.**

President,

EDMUND RUFFIN, SEN.

Vice-Presidents,

JOHN R. EDMUNDS,
WILLOUGHBY NEWTON,
LEWIS E. HARVIE,
THOMAS L. PRESTON,
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HUGH M. NELSON,
WILLIAM M. RADFORD,
WILLIAM G. CRENSHAW,
F. G. RUFFIN.

Secretary and Treasurer.

CHAS. B. WILLIAMS.

—
Chief Marshal,
CAPT. CHAS. DIMMOCK.

ORDER OF ARRANGEMENTS.

TUESDAY, OCTOBER 27TH,

1. The grounds will be opened for the admission of Officers, Judges and Members, with their families, only, at 9 o'clock, A. M.

2. At the same hour the Judges will assemble at the CHIEF MARSHAL's tent, and register their names. They will then repair to their designated rendezvous to complete their organization. Those Committees of which there shall be in attendance not less than three members, will be considered as organized for business. The organization of others having a less number present, will be completed by new appointments to be made by any member of the Executive Committee who may be notified of the existence of vacancies to be filled.

3. Books of Entries, and Form Books, in which to record their Awards, will be placed in the hands of each of the Committees at their organization, who shall thereupon proceed immediately to the discharge of their duties, *except as to the Judges on horses, whose duties will be postponed until the next day.*

WEDNESDAY, OCTOBER 28TH.

1. The grounds will be opened to the public at 9 o'clock.

2. Members shall have free admittance on exhibiting either a certificate of life membership, the badge prescribed by the Executive Committee to designate life members, or a receipt for payment of the contribution for the current year.

3. Tickets of admission, (at 25 cents each,) will be obtained at the ticket offices, near the entrance gates.

4. The Judges on Horses will proceed to the discharge of their duties. Each class proceeding agreeably to the order in which they shall be called for by the Chief Marshal.

THURSDAY, OCTOBER 29TH.

1. The Fair grounds will continue open to the public through the day.

2. The ploughing match will take place at 10 o'clock, A. M.

3. The Annual Address will be delivered at night.

FRIDAY, OCTOBER 30TH.

At 10 o'clock, A. M., the reports of the Judges will be read from the stand, announcing

the names of the successful competitors for the Premiums of the Society.

INSTRUCTIONS TO THE JUDGES.

1. The Judges are requested to report themselves on Tuesday morning, at 9 o'clock, to the Chief Marshal at his tent on the grounds.

2. The Committees of Judges under Branch II. of the Schedule, viz: "Essays and other Written Communications," are requested to meet in Richmond on Friday, the 23rd of October, preceding the exhibition, in order to allow themselves full time to make careful examination of the communications to be referred to them.

3. The Judges are requested to observe particularly and to conform strictly to the general rules and regulations adopted by the Executive Committee, as well as to the "Special Rules," interspersed through the Schedule of Premiums.

4. Should any thing be exhibited to the Judges which they shall deem worthy of special attention, and for which no premium has been offered, they will furnish a certificate in the form printed and furnished for that purpose, which the Assistant or Clerk of the department will present, together with the article, to the Committee on Discretionary Premiums.

5. *Live Stock.*—The Judges will be expected, in making their decisions, to have regard to the symmetry, early maturity, size and general characteristics of the breeds to which they belong. They will make the proper allowances for age, feeding and other circumstances affecting the character of the animal. They are particularly required not to give encouragement to over-fed animals for breeding purposes.

Animals fed for the shambles shall not compete for premiums, except in their proper class.

Judges will report not only the animals entitled to premiums, but also those next in merit in each class, to meet the contingency of any objection which may arise to the awards. Any animals which, in the opinion of the Judges, deserve a special commendation, they are requested to report to the Executive Committee.

6. The Committee on Discretionary Premiums will consider such subjects only as are brought regularly before them by certificates as prescribed in article 4th of these instructions.

Form of certificate to be presented to the Committee on Discretionary Premiums, agreeably to the 4th article of the instructions to the Judges.

Mr. _____ has exhibited to the Judges on

for which no premium has been offered. They deem it worthy of the attention

of the Committee on Discretionary Premiums, and recommend it accordingly.

_____, Chairman.

RULES AND REGULATIONS.

Rule 1. While every effort will be made to secure the examination and proper notice of every article on exhibition, the EXECUTIVE COMMITTEE will not be responsible to any Exhibitor that his articles will be examined by the Judges, who neglects or fails to comply with the requirements of the following Rules and Regulations, *as justice requires that they shall in all cases first receive attention who have complied strictly with the regulations prescribed by the Society.*

1. The exhibition by a LIFE MEMBER, of his certificate or a badge, to be furnished him gratuitously; or by an ANNUAL MEMBER, of a receipt for the payment of his contribution for the current year, shall serve to admit them respectively to the exhibitions on the Fair Grounds during the continuance thereof, together with their wives, daughters, and sons under twenty-one years of age.

All other persons will pay 25 cents for a ticket, for each time of admittance, to be surrendered at the gate on entering the grounds.

2. Exhibitors at the Fair—who may not be members of the Society—must become such, or else will be required to pay an entrance fee of three dollars to entitle them to the privileges of exhibition and admittance to the grounds.

3. All who intend to become exhibitors are earnestly requested to forward to the Secretary at Richmond, at least ten days before the exhibition, lists and descriptions of the animals or articles intended to be exhibited, in order that timely provision may be made for the arrangement and accommodation of all such articles and animals.

4. All animals or articles intended for exhibition, will be registered at the Secretary's office, up to the close of the day on Friday, the 23rd of October, and thereafter at the business offices on the show grounds until the close of the day on Monday, the 26th.

Duplicate cards, descriptive of the animal or article entered, will be issued, one of which will be attached to, or placed near the subject of exhibition—the other be retained by the exhibitor until the close of the exhibition, and then, if for live stock or poultry, shall be returned to the Forage Master, who shall, upon receiving payment for grain furnished, grant him a permit to withdraw the same from the grounds, or if for any other article, then to be returned to the Assistant having charge of the department to which the article belongs, who shall thereupon allow the same to be withdrawn from the grounds.

5. Nothing will be allowed a place on the grounds which shall not have been previously

registered, nor will any animal or article be received later than 9 o'clock on Tuesday morning, the 27th of October.

6. No animal or article entered for exhibition can be taken away before the close of the Fair, except by permission of the President, to be granted only for such special cause assigned as he may deem sufficient to justify a suspension of this rule. No premium will be paid on any articles or animals removed in violation of it.

7. On Tuesday, the first day of the Exhibition, none but members of the Society and their families will be admitted, that the Judges may not be incommoded by a crowd whilst viewing the subjects of exhibition.

8. On and after Wednesday, 9 o'clock, A.M., the public will be admitted to the grounds.

9. Agricultural Societies of other States, and sister Societies within this State, are invited to send delegates to the Fair. Such delegates will be admitted free.

10. The Executive Committee will take every precaution for the safe keeping of articles exhibited, but will not be responsible for loss or damage that may occur during the Fair, unless such loss occur clearly from want of due care on the part of the Society's agents. Exhibitors are, therefore, requested to give attention to their articles.

11. The Chief Marshall will call the Judges at 9 o'clock on Tuesday morning and direct them to the rendezvous provided for the departments to which they belong, where they will be furnished with the printed lists of premiums, (one to each committee, when organized,) with the books of entries of animals or articles in their departments, and also with blank books in which to register their awards. The Judges will then be conducted by the Assistant Marshals to their respective departments of the exhibition.

12. The Marshal and his aids shall give particular attention to the proper arrangement of all articles exhibited in their respective departments; point out the articles or animals to the Judges, and otherwise facilitate their examination.

13. All productions of the soil placed in competition for premiums, must have been cultivated and grown by the competitors, unless it is claimed that it is a new product or a new and valuable variety of one already cultivated.

14. Hay and straw will be furnished, without charge, for all animals entered for premiums, and grain will be provided on the grounds, to be supplied to exhibitors at cost and expenses.

15. No person will be allowed to interfere with the Judges whilst examining and comparing animals and articles submitted for their adjudication. Any competitor so doing, with in-

tent to influence the decision of the Judges, shall be excluded from receiving a premium. Competitors will, nevertheless, be at liberty to communicate freely to the Judges any information which they may think proper to ask for.

STANDING RULES IN REGARD TO PREMIUMS.

1. As required by the Constitution of the Virginia State Agricultural Society, the premiums to be awarded "shall be, in all cases, such as are likely to benefit agriculture, horticulture, or the auxiliary mining and mechanic arts."

2. The decisions of the Judges of awards, as to the merits of subjects will be respected as final in every exercise of their legitimate authority. But any awards made contrary to the requirements of the rules for directing and restricting premiums, claimants, or awards, will be disregarded or reversed by the Executive Committee.

3. No subject, (whether animal, implement, writing, or other,) for which a premium or honor is offered shall be deemed entitled to either, though being the best, or the second best, of all of the kind offered, unless such article is deemed by the Judges of sufficient merit to deserve such rewards.

4. Any animal, machine, or utensil, which shall have had a premium awarded to it once, as being the best of its kind exhibited, shall not thereby be debarred from claiming and obtaining the like distinction, so long as the particular subject shall still be deemed the best at subsequent exhibitions of the Society. But in such cases, after two premiums, in different years, may have been awarded to the same subject, any subsequent honor to the same shall be a testimonial only of its continued superiority. Such testimonial being in lieu of the first premium it will of course be withheld from any other competitor. No other subject except the above named shall obtain a premium more than once.

5. The kind of admissible testimony in the case of farming, crops, experiments, &c., cannot be described in advance. The committees for examining claims for premiums on subjects of this class, must judge of the value of the testimony offered, as well as of the value of the claim in other respects. As no other witness is usually available in such cases, the claimant must testify in his own case, unless he has obtained and prefers to offer the testimony of others also.

6. No one subject shall receive two premiums, by the awards of different committees of Judges, at the same Fair—unless when one of the premiums was offered expressly as additional.

7. All written communications (unless reports of experiments not then completed,) must

be sent in to the Secretary of the Executive Committee at least two weeks before the annual meeting and Fair of the Society.

8. All articles offered for premiums, other than communications in writing, if not on the ground on the day preceding the day for the first action of the Judges, may be passed over. All reports of the awards of Judges, to be valid, must be delivered to the Executive Committee, for examination, by the afternoon preceding the day for announcing the awards of premiums.

9. When two subjects, of the same kind, presented for premiums, are deemed by the Judges of equal merit, and also of such high degree that to either, if alone, the premium would be awarded, in such case, the award must be to divide the first and second premiums equally between the two competitors, or in case there shall have been no second premium offered, then to divide the first only in like proportion.

10. In all cases the parties entitled to premiums may receive them, according to their own election, either in money or its equivalent in silver plate, bearing an inscription representing the particular subject for which the same shall have been awarded. Provided that no such inscribed plate shall be given, in lieu of money, if the premium is of less value than ten dollars.

11. If the premiums awarded at any annual Fair, shall not be claimed before the close of the Fair next succeeding the one at which the award was made, the amount will be deemed to have been surrendered to the Society, and payment will be withheld accordingly.

12. No refreshments in food or liquors, shall be furnished on the Fair Grounds, or elsewhere, at the expense of the Society; nor any grain or provender be provided except for the animals entered for premiums under the general regulations in such cases.

13. In every case of stock entered for premiums, the *owner* must be the exhibitor thereof.

14. Stock may be sold at auction at and after 4 o'clock, P. M., during the three last days of the exhibition, but shall not be removed from the grounds until the close of the fair, except by special permission obtained from the President, agreeably to article 6th of the Rules and Regulations.

Drills with Guano Attachment, &c.

HOLKHAM, NEAR WOODVILLE DEPOT,
Albemarle Co. Va., July 22, 1857.

To the Editors of the American Farmer:

Your esteemed favor asking for a communication detailing my experience on the subject of wheat drills, guano, &c., reached me in due time, but an unusually large wheat and hay harvest, together

with the warm weather, has delayed my response.

The very high price of Peruvian Guano, the fact that more than one-third applied broadcast, (by accurate analysis) is not taken up by the wheat crop, coupled with the belief founded on several most satisfactory and conclusive experiments, that it is not a permanent improver of the soil, induced me to seek for some other mode of application, requiring less, and therefore more remunerative. The Drill with guano attachment, naturally occurred to me as a great labor, as well as a guano saving machine, provided one could be found to perform what was promised, of sufficient strength and durability, and not too complicated. Most flattering accounts, certifies, &c., were to be seen in the various publications—but after learning the opinions of some of the most practical and enlightened agriculturalists of Virginia and Maryland, who had seen and used different varieties of the drill, I was induced to order one of Bickford and Huffman's, of Macedon, New York, for myself, and also for some of my neighbors.

Several varieties have been tried in this neighborhood, all of which performed so unsatisfactorily that the small number not returned, if not abandoned altogether, will be but little used, and nearly all the above farmers have ordered Bickford & Huffman's Drill. That this is far superior to all others, I am perfectly satisfied, and this opinion is fully substantiated, by all who have used it, within my knowledge, independent of numerous certificates of agriculturists, whose reputation, skill and practical knowledge places them above the suspicion of either intentional or unintentional deception—about 3-5ths of my wheat crop was put in with the Drill, the balance with large cultivators—and immediately contiguous in different portions of the field, the drilled wheat was several days earlier maturing, decidedly superior to the broadcast, and will make from $\frac{1}{2}$ to $\frac{1}{2}$ more, in some places double. As this may appear extravagant; it may be proper for me to mention that the attention of several of our most intelligent farmers was called to this marked difference, who concurred with me in the above opinion, and several at once determined to procure B. & H.'s Drills.

I applied Reese's Manipulated Guano,

Mexican and Columbian Guano, also De Burg's Super Phosphate of Lime, all except the first, mixed in different proportions with Peruvian Guano, and while all will doubtless benefit the soil and after crops, the character of the wheat seemed almost entirely dependent on the quantity of Peruvian Guano applied—the result of which experiment was anything but pleasant to me, smarting under the high price of Peruvian Guano, which has become almost indispensable to wheat growers in Virginia and Maryland. Though not precisely accurate, I generally applied with the drill from eighty to one hundred and twenty-five pounds Peruvian Guano, mixed in different proportions with Phosphatic Guano, Super Phosphate Lime, &c.,—broadcast from one hundred and seventy-five to two hundred pounds of same mixture. On my latest seeding of about thirty-five bushels, sowed last of October, and the first week of November, applied with the Drill a larger quantity of Peruvian guano, with a small amount of plaster—the effect was palpable to every one whose attention was called to it.

The attachment will distribute Peruvian Guano, with sufficient regularity, if dry enough to weigh not more than 57 pounds to the bushel, after being pulverized. If heavier, and of course damper, Columbian Guano or plaster should be added, the quantity dependent on its condition.

The condition of the guano affecting so much the distribution of it, the practiced eye is the best guage or regulator, and the openings through which it passes must be enlarged or decreased accordingly. The drill sows very accurately wheat which is perfectly clean, as it should always be for seeding.

Excepting a small portion of my latest seeding with the drill, where I sowed $1\frac{1}{4}$ bushel, I sowed only one bushel to the acre, and I will make several hundred bushels more than I have ever made heretofore. This last was considerably thicker and more luxuriant than broadcast do. adjoining $1\frac{1}{4}$ bushel to the acre.

While I have always been an advocate of what some considered rather thin seeding, $1\frac{1}{4}$ bushel to the acre will I think, generally answer best—a smaller quantity might, some seasons, prove too thin—and much more, unless a remarkably fertile soil, would probably be dwarfish and sedgy.

Several persons who had used other drills, in different portions of the Piedmont region, predicted that my wheat would prove to be too thin; that they had found it necessary to sow a good deal more with the drill than broadcast. This was easily accounted for—their drills operating imperfectly, not sowing much more than half the quantity indicated.

As to the labor saved, I had a grass seed sower attached behind, which sowed clean timothy seed beautifully, and a man, small boy to drive, and three horses to it, accomplished more than five men, seven horses and two large cultivators, requiring each three horses, the other being necessary to mark off the lands for the seedsman—the additional men being necessary to sow the wheat, guano and grass seed.

The inference from the above is, that no one should purchase a drill unless he anticipates giving a good deal of his attention or his overseer's to the management of it—so very minute a quantity of guano passing through orifices so small, a feather, straw, &c., may obstruct its regular distribution; hence, the practised eye is constantly needed to detect any stoppage or irregularity.

A correct estimate of the labor, guano and wheat saved, will place in the strongest light the superior advantages of the drill. The improvements in Bickford & Huffman's Drill, suggested by Mr. Goldsborough in his valuable communication in the July No. of the Farmer will, I trust, be adopted by them; and with all due deference I will suggest that they should have the spindle in the axle-tree made larger, especially for rough, rolling land,—a farmer in this neighborhood was compelled to send his to a shop to have it straightened, and it was bent sufficiently in my drill to cause the iron covering protecting the cog-wheels to strike and cut the spoke, and very soon to be broken.

Having written the above rather hurriedly, and perhaps not with that perspicuity so desirable in the discussion of such subjects, I will give, in short, the conclusions which I have arrived at:—

That at the present prices of Peruvian Guano, it is extremely hazardous to apply the quantity necessary to be sown broadcast. That Peruvian Guano, even at present prices, is worth more than all other fertilizers for wheat, and from 100 to 125

lbs. applied with the drill will make a better crop than 175 to 200 lbs. broadcast. That a large amount of labor is saved when absolutely required for taking care of tobacco, corn and fodder. And finally, that a peck of wheat in every acre, may be saved by the drill without any detriment whatever to the product. With kind regard, I am most

Truly and faithfully yours,
JNO. R. WOODS.

P. S.—As there are doubtless many who believe that Peruvian Guano is a permanent improver of the soil, it will probably be not unacceptable to your numerous readers, to detail the experiments which convinced me that this opinion was erroneous, at least to a great extent. Several years since I applied guano to a small square of our best chocolate soil, at the rate of about 2000 pounds to the acre, which was thoroughly spaded and raked in, so as to bring about a perfect admixture of it at least 12 inches deep—to another square of thin red soil, in the same field about 700 pounds. The wheat on first square was very indifferent, a good deal destroyed by the excess of guano; a heavy crop of weeds sprung up but no clover; sowed it next spring and it took well. On the second square the wheat was considerably better than immediately contiguous, where from 175 to 200 pounds were applied, making one half again as much. But the clover and several crops since grown on both squares have been no better than on adjacent soil.

HOLKHAM, ALBEMARLE, VA. }
July 23d; 1857. }

To the Editors of the American Farmer:

GENTLEMEN:—You will observe that Mr. Goldsborough and myself agree in our views as to the advantages of the drill, compared with broadcast culture, differing only as to the benefits to the wheat crop from the application of Phosphatic Guano.

After enclosing my letter yesterday, it occurred to me, it would be desirable that I should explain the cause of this apparent discrepancy.

Residing as Mr. Goldsborough does on the Eastern Shore of Maryland, the soil differing so much from ours, the preparations of lime, especially the phosphates, may produce a great effect on the wheat

and other crops; while our soil, containing already a large per centage of lime, 2 per cent. according to the analysis of Professor Wm. B. Rogers, does not need its application as other soils more deficient.

The astonishing results in lower or tide water Virginia from the use of marl, oyster shell lime, &c., (not used here at all, within my knowledge, for their immediate effect on the wheat crop,) will illustrate fully the idea which I wish to convey. The farmer who can afford to look more to the ultimate improvement of his soil than to the crop, might use a mixture of Peruvian and Phosphatic Guano; and here let me advise all farmers to do all of the manipulating which guano may require, on their own premises. Without any knowledge of the parties preparing Manipulated Guano, the temptations to practice frauds by dishonest persons are very great, and the charge for manipulating is too great also. Reese's Manipulated Guano sells in Richmond for \$53* per ton of 3,000 pounds; $\frac{1}{2}$ ton of Peruvian and $\frac{1}{2}$ do. Mexican A. A. can be bought by the small quantity at \$43. The farmer can use his barn floor on a rainy day, thoroughly mix the two, and with one of the best of the different varieties of horse mills, grind it as fine as he chooses—the amount saved will soon pay for the mill, and what is exceedingly important, he knows precisely what the mixture is composed of.

I stated that I did not consider Peruvian Guano a permanent improver of the soil, except to a very limited extent, and therefore advised its application with the drill as more remunerative.

The increased growth of clover is but a small compensation for the large amount of guano not accounted for in the crop of wheat when applied broadcast at the usual rate—200 pounds to the acre.

In much haste,
I am truly and faithfully yours,
JNO. R. WOODS.

A CURE.—It is said that inflammatory rheumatism can be cured by the following simple method which we extract from a medical publication:—Half an ounce of pulverized saltpetre put in half a pint of sweet oil. Bathe the parts affected, and a sound cure will immediately follow.

[*The price in Baltimore is only \$48, for $\frac{1}{2}$ Peruvian and $\frac{1}{2}$ Phosphatic Guano.—*Ed. Far.*]

From the Boston Cultivator.

Deep and Shallow, Relative Terms.

Messrs. Editors—In advocating what he calls deep tillage, Woodward, the patentee of the harrow bearing his name, thus expresses himself: “In traveling much over the country with my patent, I have discovered, to my surprise, a great want of agricultural spirit, and it has astonished me to find that nineteen farmers out of twenty are averse to deep plowing; their average depth being four inches, and in many places not so much, the reason assigned being, a fear to bring the clay to the surface; but I would ask, would it not be wiser to cover the good soil with the clay from the substratum, and thus protect it from the heat of the sun? In my opinion, I would say, plow six inches deep, or no clay.” So there, our spirited friends deems six inches deep-plowing, while others of the same schools give it as their conviction, that a foot in any soil is not sufficient if more can be obtained! while their gratitude to friend Woodward is due, for helping them to a new argument for their deep-sea culture, namely, “it is wiser to cover the good soil with the clay from the substratum, and thus protect it from the heat of the sun”—quite a novel and refreshing phase; and, of course, the deeper the covering of clay, the more effectual the protection! But to show that deep and shallow are merely relative terms, allow me to state the following fact, that came immediately under my own observation.

A relation of mine in England, who dwelt in the city and there carried on the businesses of tanner, currier and leather-seller, malster, coal-merchant and rectifier of spirit under a government license, finding a want of recreation, purchased a farm of 200 acres within two miles of the city, where, by the superintendence of a most intelligent bailiff or steward, he was accustomed to grow wheat of so fine a quality that every bushel of it was bought up at double the market price as seed for sowing, bearing, at the same time, the name of “Tanner’s Wheat,” and being proverbial for beauty of sample and freedom from weeds of every description, unapproachable. These things had gone on well, when one day he saw in a publication of Arthur Young, that no one

plowed deep enough; the quantity of crop depending on the depth to which the land was plowed, and which might thus be augmented to almost any extent; so he ordered the steward to plough deeper, enquiring to what depth he now penetrated? and on being told, “to the staple of the soil, five inches,” instructed him to go an extra three inches for the present, when the man replied, “then you will ruin the land to eternity, filling it with millions upon millions of weeds, spoil the crop of wheat and ruin its character in the market, without ever again harvesting, as heretofore, a crop from 38 to 40 bushels per acre, and sometimes more!” But Arthur Young prevailed, and the prophecy was fulfilled to the letter, the crop of red-wed—poppies—that sprung up covering the whole field with one carpet, seen, admired and ridiculed for miles and miles around, to the owner’s deepest chagrin and mortification, the crop of wheat being no longer fit for seed, and hardly for bread: the only way partially to remedy the evil, being to turn down the stubble to the ruinous depth to which it had been broken up, cultivate green crops in succession, and leave well-enough alone.

B. G.

The Cholera among Hogs.

The Buffalo Republic, referring to the malady that has prevailed among hogs in the Ohio Valley, says:

The same malady appears to have prevailed extensively in the adjoining States. In Western New York, especially, we learn it has been very fatal, but is now over. In conversation with one of the most extensive dealers in the neighborhood, a day or two since, he informs us that about six weeks ago he lost about four hundred in a very short space of time. A distiller in Jordan, during the month of September, lost fourteen hundred, which cost him in addition over \$1,000 to have them buried. In Rochester, at all the principal points, and even among the farmers, the mortality has exceeded anything ever before heard of. A butcher in this city, not long since, purchased five hundred dollars worth of fat hogs, but they died so rapidly on his hands, that he scarcely realized \$75 dollars on his investment.

In this quarter the disease appears to

have been confined to no particular class of hogs but to have prevailed indiscriminately among "all sexes, age and condition"—corn-fed, still-fed and grass-fed, have fared alike. The fattest, however, seem to have been more susceptible than others. When first attacked, the hog was noticed to fall rapidly away. Soon the skin about the neck and ears assumed a purplish hue, and generally in about an hour the hog was dead, after which the whole carcase became purple. The lungs, liver and kidneys, on examination, were found to be like sponge in appearance, but nothing like the symptoms of cholera has been noticed in this vicinity. In the neighborhood of Cincinnati, it is said that the disease appears to have assumed the form of erysipelas in the throat.

All efforts at finding a remedy which should prove the least effectual in staying the ravages of the epidemic have thus far failed. In this quarter, however, the disease appears to have ceased its ravages some four or five weekes ago; but it is not improbable that it will return again another season, and in the meantime its origin and progress should be investigated. Whether the subject is of sufficient importance to call for legislative interference in regulating the sale of it we shall not attempt to decide. We presume every person will consult with his own *taste* in pork in this respect.

From the *Enquirer.*

BALTIMORE, July 27, 1857.

FRANK G. RUFFIN, Esq.,

Editor Southern Planter.

DEAR SIR—In the July No. of the Southern Planter, is an article on super-Phosphates, by Prof. Gilham, of the Virginia Military Institute, in which, amongst others, the "Rhodes'" Super-Phosphate is assailed.

As the formula for making this was furnished by our State Chemist, Dr. Higgins, there is *no mistake in it*, and any impurity or defect in the compound must rest with the manufacturers.

It would have been proper, had Prof. Gilham, in attacking the Rhodes, Super-phosphate, have not stated a chemical impossibility, for us to have gone into an elaborate defence of it, and published the

analysis of Dr Higgins & Bickell, of the manufactured article.

This defence Prof. Gilham has saved us from, for he states he finds "7½ per cent. of soluble or super-phosphate of lime" and that it "also contains carbonate of lime." Now, on this, we join issue with Prof. Gilham and say, that the existence of soluble or super-phosphate of lime and carbonate of lime, is a chemical impossibility; it never has existed, never can exist and never will exist in the same preparation; *the presence of the one necessarily excludes the presence of the other.*

For this we have the authority of the leading chemists of the day, and we ask Prof. Gilham to again examine the Rhodes' super-phosphate and correct his chemistry.

In this connection we would boldly but respectfully remark, the Rhodes' super- of lime contains more soluble phosphoric acid than any other article manufactured, and having made extensive arrangements to meet the increasing demand, would refer Virginia farmers to our agent in Richmond, Messrs. Schaer, Kohler & Co., and at Petersburg, Messrs. Venable & Morton, who at all times have supplies on hand.

By inserting the above in the next number of your useful Journal, you will greatly oblige,

Yours, truly,

B. M. RHODES & CO.

HOW TO EXTRACT THE ESSENTIAL OIL.—Take any flower you like, which stratify with common sea-salt in a clean earthen glazed pot. When thus filled to the top, cover it well, and carry it to the cellar. Forty days afterwards put a crape over a pan, and empty the whole to strain the essence from the flowers by pressure. Bottle that essence and expose it 4 or 5 weeks in the sun and dew of the evening to purify. One single drop of that essence is enough to scent a whole quart of water.

Is it so?—Eggs, which are now so abundant, can, it is said, be better preserved in corn meal than in any other preparation yet known. Lay them with the small end down, and if undisturbed they will be as good at the end of the year as when packed.

Reply.—it may answer. So will Lime water or anythig else that will close pores of the shell.

LIST OF PAYMENTS

From May 21

All persons who have made payments early enough to be entered, and whose names do not appear in the following receipt list, are requested to give immediate notice of the omission, in order that the correction may be made in the next issue:

Moody, April 1858	\$2 00	C Leigh, Jan 1858	\$1 00	J Johnson, Jan 1858	\$2 33
Groseclose, 15 Feb 58	2 00	Dr John Butler, Apr 58	2 00	W M Shepherd, "	2 00
R C Mason, Feb 58	2 00	S B Atwill, "	2 00	Wm C Gilnore, July 58	2 00
as F Hite, April 1858	2 00	W Appleberry, jr, Jan 58	2 00	E Porter, July 57	2 00
A Hairston, "	2 00	W Benton, Oct 58	5 00	W Patrick, April 60	5 00
os Green, "	2 00	Maj Jas Paxton, July 57	2 00	Dr H Curtis, Jan 58	2 00
W P Braxton, Jan 58	2 00	D B Stigle, May 57	1 45	John Aldridge, Oct 57	1 00
N K Foster, 15 Feb 58	2 00	J H Evans, Dec 57	1 00	F D Wheelwright, Jan 58	2 00
dge Moncure, Jan 1858	1 17	Col P W Meredith, Jan 58	1 00	R W Flournoy, "	1 58
C L Moncure, jr. Jan 58	2 00	J T Baughan, "	2 00	J E Harris, "	2 33
s Lyons, "	2 00	J G Powell, "	2 50	Dr T A Field, Jan 60	5 00
P Strange, "	1 50	S S Gresham, "	1 83	T H Oliver, Jan 1858	1 00
s M Hite, "	2 00	John H Lee, "	3 25	E A Coleman, "	2 33
s Hart, 1860	5 00	W M Bowie, July 57	5 00	Josh Miller, Apr 58	2 00
os G Bumpass, 15 Mar 58	2 00	H B White, Jan 59	5 00	W P Shepherd, Jan 58	2 00
ilson Winfree, Jan 58	2 00	Nevitt & Snowden, June 58	2 00	Isaac Rose, "	3 00
s L Saunders, May 58	2 00	Dr C P Hartwell, Jan 58	2 00	Dr C R Randolph, Oct 57	2 00
o Kent, Sr, Jan 1858	2 73	W W Harris, "	2 00	B Winston, Apr 59	5 00
J V Hobson, Jan 1858	1 58	S P Byrd, "	2 00	W H Decourcy, 15 Mar 60	5 00
J Wheeler, Jan 57	1 05	R S Selden, "	2 00	Maj Geo Wilson, July 60	5 00
eter Burruss, April 58	2 00	J R Bryan, July 58	2 00	Geo W Whitmore,	
odrich Wilson, Mar 58	2 00	Peyton Rice, June 58	2 00	Z Johnston,	
m A Warren, Jan 58	2 00	John T Gayle, Jan 1858	2 00	H B Jones,	
W Ford, "	3 00	F G Bridges, "	2 00	J J McBride,	
Branch, "	2 00	H C France, "	2 00	G W Houston,	
m Eddins, March 58	2 00	Geo W Key, "	2 00	Saml Willson,	
L Cason, Jan 1858	1 75	C A Hundley, Jan 59	5 00	J Willson,	
M Harris, "	3 25	Z Drummond, Jan 58	2 00	A B Anderson, Jan 58	1 33
is A Walker, Oct 1858	3 00	Thos Betterton, Mar 58	2 00	A Dill, "	2 50
m Fariss, May 1858	2 00	R Colston, Oct 58	5 00	Philip Edge, April 58	2 00
rs F T Harvey, Apr 60	5 00	Wm Waller, Apr 58	2 00	W M Connelly, Jan 58	2 50
is H Burgess, Oct 58	5 00	A G Ware, Jan 58	3 45	J D Makeley, "	2 50
eo W Turner, Jan 58	1 00	W F Hobbs, Jan 59	3 50	Dr J B Kirby, April 58	2 00
S Jones, "	1 00	W F Lewis, "	4 00	Chas Ellett, jr, Jan 58	2 00
H K Taylor, "	3 25	Ro Anderson, Jan 58	2 00	W D Mansfield, "	1 00
Walke, Apr 58	3 25	E Knight, "	2 00	Jas Chandler, July 58	2 00
r S Maupin, Jan 1858	2 00	B B Douglas, July 59	5 00	Col Wm Hayward, Jan 58	3 00
Henry Quarles, "	2 00	H Mackey, Jan 58	1 50	Jos Horner, "	2 33
ohn S Hobson, "	4 70	Rev R E G Adams, Mar 58	2 00	Thos R Hollyday, "	3 00
ohn Poe, "	1 83	Chas Middleton, Jan 58	2 00	R G Harrell, "	1 00
T Withers, "	2 00	Dr W R Nelson, "	2 00	O C Fowler, "	1 00
B Hamlin, "	2 00	N Sowell, "	4 50	A C Page, July 58	2 00
Heptenstall, Jan 1860	5 00	A B Duncan, Apr 58	2 00	Dr J L Burruss, Jan 58	2 25
ohn Currie, Mar 58	2 00	H H Roberts, Jan 1858	5 75	E J Bates, 15 Dec 57	1 00
as Chandler, July 1857	1 50	Wm S Carter, Jan 59	4 00	Dr Wm Fuqua, Jan 58	2 00
ol W W Brown, Apr 58	2 00	W W Michaux, Oct 63	10 00	E D Hundley, "	2 75
ere Morton, 15 Mar 60	5 00	E Gerst, March 58	2 00	J W Allen, July 58	2 00
Dr J P Mettauer, Dec 57	1 00	John E Hughes, 15 Dec 57	2 00	J D Ligon, Mar 58	2 00
C R Taylor, Jan 1858	1 50	Ro H Richardson, 15 Ma 58	2 00	Saml Williams, June 58	2 00
Dr H C Worsham, Jan 58	2 00	Wm Houchens, Jan 58	3 00	S J Cabell, Jan 59	5 00
E Wortham, "	2 00	L A Crenshaw, "	2 00	S W Ficklin, April 58	2 00
O Perkins, "	2 00	W Leitch, April 58	2 00	A J Matthews, July 58	5 00
Z Shirley, "	2 50	R Green, Jan 58	2 00	Wm M Miller, Jan 58	2 00
os S Perkins, Mar 60	5 00	G Breant, Jan 1860	5 00	R S Voss, July 58	5 00
O Claybrook, Jan 60	6 00	Thomas Thurman, Jan 58	2 00	John Colgin, Jan 58	2 00
Judge Thos Ruffin, Jan 60	5 00	R Harvey, "	2 00	John Walker, Mar 60	5 00
C H Garrison, July 57	94	J O Massie, "	2 00	N A Holman, Nov 57	2 00
W H Harris, Apr 60	5 00	C C Hightower, "	2 00	L M King, Apr 58	2 50
Dr W Gwathmey, Jan 58	1 00	T L Page, "	2 00	J S Cowan, Oct 57	2 00
I W Ashton, "	2 00	Saml Fazlar, "	2 00	S King, "	2 00

HAMPTON MALE AND FEMALE ACADEMY.

INSTRUCTORS.

JOHN B. CARY, A. M., Principal, and Instructor in Ancient Languages, Mathematics, &c.
JOHN B. WILSON, A. B., M. D., Assistant Instructor in Ancient Languages and Mathematics.

—, Instructor in Modern Languages, Music and Drawing.
MISS EMILY A. CLEVELAND, Instructress in Female Department.

JAMES MASSENBURG, JR., Instructor in Military Tactics.

The exercises of this School begin on the *First Monday in October*, and close on the last Friday in July.

TERMS—Per session (payable semi-annually, *in advance*.)

Board (Lights extra) and Tuition in Ancient Languages, Mathematics, &c.	\$220 00
(any or all)	
Modern Languages, each, (extra)	15 00
Music, with use of Instrument, (extra)	50 00
Drawing, (extra)	15 00
Matriculation and Library Fee, (extra)	2 00

For the character of the School, reference is made to the following testimonials:

VIRGINIA MILITARY INSTITUTE, May 22, 1857.

I take pleasure in recommending to public favor the Hampton Academy, under charge of J. B. Cary, Esq. My estimate of this Academy, and of the ability and fidelity of Mr. Cary, is founded upon the character of the material which he has sent to this Institution. All of those young gentlemen who have entered the Institute from the Hampton Academy, have shown that they have been faithfully taught.

FRANCIS H. SMITH, *Sup't.*

The members of the Faculty of William & Mary College take pleasure in stating, for the information of all interested, that the Hampton Academy, as conducted by JOHN B. CARY, Esq., is, in their opinion, an Institution of high rank, and well worthy of public patronage. This opinion is based on the general reputation of the School, the well known qualifications of its accomplished Principal, and on the scholarship of its pupils.

SILAS TOTTEN,
H. A. WASHINGTON,

BENJ. S. EWELL,
M. J. SMEAD,
THOS. T. L. SNEAD.

Williamsburg, June 2, 1857.

Of his associates, the Principal begs leave to say, that two of them, Miss Cleveland and Mr. Massenburg, are well known to the friends of the School to be proficients in their respective departments. Dr. Wilson is a graduate in *five schools* of the University of Virginia, and is strongly recommended besides, by Senators Hunter (in whose family he taught for two years) and Mason, Judge Parker of Winchester, and others. The vacancy in the Department of Modern Languages, &c., will be filled *before the 1st October*, by one whom he will guarantee to be *thoroughly* competent in those branches.

For Catalogue, or further information, address the Principal, Hampton, Va.

[1]

Attention Farmers. GUANO DIRECT FROM PATAGONIA.

Referring to our advertisement in the August number of the Southern Planter, we have now the pleasure of informing the Farmers that after making some chemical tests here of the Guano there-in referred to, and having unquestionable proofs of its being genuine Patagonia Guano, we secured the cargo of the *Mary Francis*. She came on directly to our port without breaking bulk, and we are now having the Guano bagged at our wharf. It is the only cargo of Patagonia Guano in the United States, so far as we can ascertain, and of it there are only 350 tons, nearly half of which is already sold, mostly to those who have used Patagonia Guano several years ago—all of whom, so far as we can learn, were pleased with the results, both on the crop of grain and the succeeding grass and clover.

Our own opinion is based on the experience of those who have used Patagonia Guano heretofore, among whom we name N. W. Harris, Esq., of Lonisa; Richard Sampson, of Goochland; W. G. Crenshaw, Richmond; W. C. Scott, Orange; Dr. W. L. Wight, Goochland.

From the chemical tests of this cargo, we are very favourably impressed with its value, and have great hopes that alone, it will have a fine effect; but as it has only a limited quantity of ammonia, which of all other fertilizers gives promptly the greatest growth of straw, it is not expected that it will at once shew such an effect as Peruvian Guano, yet we think the Soluble Phosphate of Lime will increase the quantity of grain very materially. Our W. G. Crenshaw therefore intends to combine it with Peruvian Guano in equal quantities, and we would advise its general use in this way; at the same time we want all to use a portion of it alone, and we hope accurate experiments will be made and reported to us, that we may be prepared with supplies for the next crop, provided, as we have now every reason to hope, the result will be satisfactory.

We think, therefore, that each farmer will consult his interest by making a portion of his purchases this fall of the Patagonian Guano. Price \$10 per ton of 2,000 pounds, delivered at the Depots or Boats.

CRENSHAW & CO.,

Commission Merchants and Grocers, Richmond, Va.

We also solicit orders for genuine No. 1 Peruvian Guano, direct from the Agents, and the A A Mexican direct from Importers. We always furnish at the lowest prices.